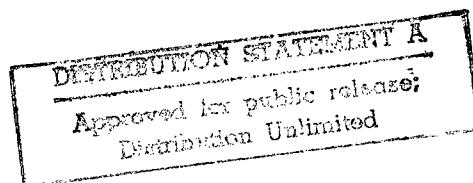


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13 March 1984



# Worldwide Report

TELECOMMUNICATIONS POLICY,  
RESEARCH AND DEVELOPMENT

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13 March 1984

WORLDWIDE REPORT  
TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

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WORLDWIDE AFFAIRS

NORWEGIAN FIRM TO AID IN NATIONWIDE AUTOMATED PHONE SET

Oslo AFTENPOSTEN in Norwegian 31 Jan 84 p 33

Article by Gunnar Filseth: "Telecommunications Contract in China to Norsk Data"

Text Peking, January 30. Norsk Data A/S continues its campaigns in China. On Friday a contract was signed with the Chinese Telecommunications Department, an agreement which may be followed by several others. This may be something of a breakthrough for Norwegian high technology in China, say representatives for the company.

The contract for six million kroner and then some is in connection with China's changeover to a new telephone system with data control, a system which will cover the entire country. The Chinese are grappling with the same advanced ITT system which Norway is also on the point of obtaining.

"The contract sum is not, I suppose, that earth-shaking, but we see this as a key contract for entering the telecommunications sector in China," says Norsk Data's market chief for China, Kristian Vennemoe. The contract will be the first of its kind which China's Telecommunications Department has entered into with a foreign business.

In the coming days Norsk Data will negotiate a comparable contract with the Telecommunications Department's regional branch in Shanghai. At the moment they are also negotiating with several other Chinese organizations, inside and outside the telecommunications sector.

"What we've done earlier in China is now turning out to have a diffusion effect," says Vennemoe.

This will also open up possibilities for the rest of the Norwegian electronics industry. In connection with the contract there are already concrete inquiries from China's side about other Norwegian industrial firms. The Chinese are interested in a system for house telephones, among other things.

Of the contract amount two million kroner go to the computer center at the University of Trondheim (Runit), which serves as Norsk Data's subcontractor

of software technology. A close collaboration is established here. This coupling between research institute and industry is proving to be very fruitful, says Runit's research chief, Professor Kristen Rekdal.

A Norwegian-financed center for data research--opened in Peking three months ago--may have been a fairly significant factor in the work which landed the telecommunications contract. Peking's institute for software technology was established with the help of ten million kroner in Norwegian assistance funds, with Norsk Data and Runit as suppliers of data equipment and software.

"This Norwegian involvement has awakened attention in the entire high-technology milieu in China. It gives us a good starting point when we compete for purely commercial contracts," says Norsk Data's sales chief for new markets, John Rostad.

"The potential for data technology in China is almost unlimited. As far as telecommunications is concerned, we are, to be sure, far from taking aim at the kind of telephone density in Norway. But even if most Chinese are modest telephone users, it will be a big operation just the same when you reorganize the whole telephone system in a country which has 250 times as many people as our own."

Last autumn International Telephone & Telegraph Co. (ITT) entered into a contract with China for the building of a factory in Shanghai which will produce equipment for 300,000 telephone subscribers yearly. In comparison, with the introduction of the ITT system in Norway, it will be a matter of 500,000 lines in the course of the 1980s.

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CSO: 5500/2591

WORLDWIDE AFFAIRS

EARTH STATION FOR ECS TO BE BUILT NEAR OSLO

Oslo AFTENPOSTEN in Norwegian 11 Jan 84 p 14

Article by Rolf L. Larsen: "Nittedal Will Get New Nordic Satellite Station"

Text The Nordic telecommunications station which will pick up TV transmissions from the European satellite system ECS European Communications Satellite will be located in the Oslo area. The station will also be the "brain" in data transmissions in the Nordic satellite system Tele-X. AFTENPOSTEN has learned that the station will probably be situated in Nittedal. The station building itself and the Telecommunications Department's equipment in the building will cost about 20 million kroner. The station will be started this autumn and will be finished by the end of 1985.

With the satellite earth station one will be able to pick up the signals from the European satellite ECS--which has now succeeded the OTS Orbital Test Satellite satellite--and transmit these to Norway and the Nordic countries. The Nittedal station will also be used for transmission of data via the Nordic Tele-X satellite. AFTENPOSTEN has learned that the station will also be used as an intermediary link station for so-called "pay TV," if it is introduced. In addition the station will be used for transmission of TV broadcasts to Svalbard and the oil installations in the North Sea.

"This station will acquire a central importance in Nordic satellite cooperation. It will become, among other things, the 'brain' itself in all data communication which will be mediated via the Nordic Tele-X satellite," says administering director Fredrik Engstrom in Rymdbolaget in Stockholm to AFTENPOSTEN.

On Tuesday Engstrom took part in an important meeting on satellite technology which Norway's Technical-Natural Science Research Council arranged in Oslo.

"The Nordic Tele-X satellite will be launched from French Guiana in February of 1987. The Tele-X satellite itself will cost about 630 million Swedish kronor (1982 kronor), while the launch and the control-station expenses will amount to approximately 360 million."

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AUSTRALIA

BRIEFS

ASIA BROADCAST TRANSMITTERS--Radio Australia will soon start testing its rebuilt transmitters on (Cox) Peninsula near Darwin. Final tuning is now being done at the station, which was devastated by a cyclone 10 years ago, and test transmissions should start in about 3 weeks. The station, which has eight aerials between 45 and 100 meters high, is expected to be operational by May. The (Cox) Peninsula station will beam Radio Australia's broadcasts to eastern Indonesia, Southeast Asia, China, and Japan. [Text] [Melbourne Overseas Service in English 0830 GMT 9 Feb 84 BK]

CSO: 5500/4369

FIJI

BRIEFS

FORUM NATIONS DEFINE TELECOMMUNICATIONS PROGRAM--The 12 South Pacific Forum Island Nations, as well as Australia and New Zealand, have defined the priorities of a ten-year programme to develop Telecommunications in the Forum Countries. The programme to cost \$100 million, will aim to provide telephone communications to villages in the Forum Countries by means of Satellite and Radio link. A meeting in Suva of Forum Members has approved the appointment of an Australian Communications expert, Mr Jim Wilkinson, as Programme Controller. The meeting agreed that the absence of reliable communications was a major factor inhibiting the growth and development of South Pacific Nations. Progress made in the Communications programme is to be reported to the next meeting of Forum countries in Tuvalu in August. [Text] [Honiara SOLOMON STAR in English 3 Feb 84 p 8]

CSO: 5500/4368

INDONESIA

BRIEFS

NEW RRI BROADCASTING STATIONS--During a working meeting with Parliament Commission I this morning, Information Minister Harmoko said that during the fourth 5-year development plan period, the Information Department plans to build a number of new RRI broadcasting stations, including one in Ende, Flores, East Nusatenggara, which will have the status of RRI Region II. He also said the department will replace worn-out technical instruments at all RRI stations. [Summary] [BK170800 Jakarta Domestic Service in Indonesian 0700 GMT 13 Feb 84]

CSO: 5500/4371

MALAYSIA

BRIEFS

DIRECT INTERNATIONAL CALLS--Malaysians can now make direct international calls to Brunei, New Zealand, and Australia. A statement from the Telecommunications Department says 31 countries can now be contacted directly by telephone. The department is make preparations to extend the service to another 10 countries by March this year. Meanwhile, an international automatic telephone exchange with 5,400 exchange lines will be launched today. [Text] [Kuala Lumpur International Service in English 0600 GMT 16 Feb 84 BK]

CSO: 5500/4370

PRIORITY EFFORT DEEMED NECESSARY TO CLOSE TELECOMMUNICATIONS GAP

Beijing DIANZI ZUEBAO [ACTA ELECTRONICA SINICA] in Chinese No 4, 1983 pp 7-9

[Excerpt from article: "Greet the UN 'World Communications Year' and Strive to Develop Telecommunications Science and Technology of China"]

[Excerpt] III. Domestic Situation

China's party and government have consistently provided utmost care and support for the development of telecommunications science and technology. Through more than 30 years of hard work, we have built up a basically equipped and fairly complete telecommunications scientific and technical system and industrial system. A definite measure of success in all kinds of specialized and public telecommunications undertakings has been achieved.

1. Transmission Technology. Cable, microwave, scatter, satellite and fiber-optic communications have all made considerable progress:

(1). A 300/960-channel small coaxial system has been put into operation. Development of a 3600-channel small coaxial system has begun. An 1800-channel medium-sized coaxial system has gone into operation.

(2). An 1800-channel analog microwave system has gone into operation. A binary digital microwave system has gone into operation. A ternary digital microwave system has completed development.

(3). A 24/12-channel 500-kilometer-range digital scatter communications system has been successfully developed and put into operation with stable and reliable performance. A mobile 150/200-kilometer-range system has also been successfully developed.

(4). In satellite communications, ground stations with 15, 13, 10 and 5-meter-diameter antennas have been successfully developed. Some have already picked up and taken the bearings of the Intersat-5 satellite, proving that their performance indexes can meet international specifications with ample to spare.

(5). In fiberoptic communications, low-order shortwave fiberoptic relay lines have already been in long-term use in cities such as Beijing, Shanghai and Wuhan, and have spread and achieved gratifying results in such areas as

railroads and electric power. Longwave fiberoptic systems have shown encouraging results for the transmission of television signals.

2. Telephone Exchanges. Step-by-step and crossbar switchboards designed and produced in China have already been installed in telephone exchanges throughout China. A number of hard-wired-logic medium- and small-capacity electronic or semiconductor exchanges are also in production and use. Program-controlled exchanges are in the development stage.

3. Networks. Special studies have been conducted on digital networks and we have successfully developed and produced third-order-and-below digital voice channel facilities, digital multiplexers and various kinds of modulators and demodulators. Civil radio stations in mobile communications have been produced in large numbers and development has begun in mobile communications networks.

The development of telecommunications science and technology in China has followed a course of independence and self-reliance and has become well-established domestically from components to entire sets of equipment. If we are talking about the level of development of entire sets of equipment and systems or about such newly emerging fields as digital microwave, satellite communications or fiberoptic communications, we are less than 10 years behind the developed countries. In telephone exchange technology, we are a little further behind yet.

4. Construction in the Enterprise of Telecommunications. Since the early period of the founding of the People's Republic, long-distance telephone lines have increased 8.3 times amounting to 23,500 lines, and there are 2,179,000 urban exchanges, an increase of 7 times.

Compared to the developed countries, China's level of telecommunications is still very low. Looking at the dissemination of telephones, there are all told 4.2 million telephones nationwide, an average of 0.4 per 100 people, which is far below the world average (11 if China is included, 14 if China is not included) and is even backward if compared with developing nations. If we do not count the masses of rural population but only consider the urban dissemination rate, it is still only 2.1, about the national level for Brazil in 1970. Looking at the number of long-distance telephone lines, China now has about 1.33 percent that of the United States and 20 percent that of India. Moreover, they are mainly overhead lines (more than 80 percent). If we are talking about the degree of automation, urban telephones are automated at 68.7 percent, long-distance telephones are automated or semi-automated at only 11.7 percent, so the systems are obsolete, the rate of calls completed is low and the quality of voice is poor.

5. Telecommunications Services. The average number of public telephones per thousand persons is 7.7 in Japan, 0.8 in Poland, and 0.3 in Malaysia. In comparison, China is very low with 0.4 in Shanghai, 0.2 in Beijing and 0.1 in Tianjin. In nonverbal communications, except for public telegraphy in China, facsimile, subscriber teleprint and data services are still used only by the extremely small minority of units, but public telegraphy services in

developing countries have declined year by year due to being superseded (England has ceased these services since October 1982). As for the level of application, China's telecommunications has remained basically at the level of the developed countries in the forties.

#### IV. A Few Conclusions and Suggestions

1. It is of utmost necessity and urgency that the party and state give top strategic priority to communications and transportation including signal communications. Considering that the proportion of China's gross national product invested in telecommunications is on the low side, and since over 75 percent of the countries in the rest of the world invest over 0.4 percent and 25 percent of the countries invest over 1 percent but China still invests less than 0.1 percent, an appropriate increase in investment is imperative.

2. China is a poor country of a billion people with 800 million of them in agriculture. The differences between urban and rural, coastal and inland, as well as between large, medium and small cities, are great. The practical requirements for different trades also vary greatly. Therefore it is extremely important that we set policy on technical equipment and science and technology from the facts as they are according to China's own conditions and not only from what we see from abroad or read in books. In a word, China's industrialization is still in the early stage with the emphasis on the development of resources and energy sources. We have yet to enter the post-industrial period with the emphasis on service industries and we still have a long way to go to the period of the information society with the emphasis on the information industry. The structure of social requirements and the structure of resources for China are far apart from the developed countries. In policy on handling telecommunications equipment, even the industrially developed countries are extremely cautious. For example, England in the fifties, to solve the problem of long-distance direct dialing, did not abandon the traditional step-by-step system exchange but adopted methods for its proper reform (such as introducing control senders). In 1966, in order to fill the gap between the step-by-step system and digital electronic long-distance exchange, they decided to develop the crossbar system as a stop-gap. The United States, in the late fifties to meet the soaring social needs of the time, mass-produced crossbar-system exchanges and even slowed up the rate of development of controlled electronic exchanges. In the seventies, the crossbar-system exchanges produced by the American firm, Western Electric, way outnumbered their controlled electronic exchanges even though at that time they already had the capabilities to develop first-rate integrated circuits and computers. We can draw a lesson from these methods for achieving optimum economic results.

3. The telecommunications and electronics industry serves as the development and production branch of the nation's telecommunications equipment. We should give priority to developing and speeding up technological reform and strive to put into common use by the early nineties, the productive technology already attained by the developed countries in the late seventies and early eighties. China's ranks of scientific research and trial manufacture personnel in telecommunications is a superb force. If we can assure the availability of parts,

materials, means for scientific research and testing and key technical equipment, China can greatly close the international gap in its level of development of telecommunications technology. Therefore it is most urgent that we give priority to the technological reform of scientific research units.

4. Since the sixties, telecommunications equipment of the developed countries has gone through four generations from electron tubes to transistors, integrated circuits and large-scale integrated circuits, has seen the shift from electromechanical to computer control and from centralized to decentralized control, and has shown a tremendous rise in performance, quality, reliability and maintainability while showing a large drop in cost. These will all require a rapid change in the basic structures of China's scientific research and production in electronics, shifting them to new bases such as microelectronics, solid-state electronics and optoelectronics. These bases require ultrapure materials, ultraprecise processing, automatic testing and specialized equipment. They also require an ultraclean work environment. This is a newly emerging industrial field where funds and technology are concentrated, development is rapid and competition is fierce. To establish this basic industry, the developed countries have spent the last 20 years and hundreds of millions of U.S. dollars. To maintain and develop superiority, they have had to constantly invest huge sums and vast scientific and technical resources. The governments of some developed countries such as Japan have conducted vigorous intervention and enacted correct policies to effectively organize to a high degree the formerly mutually competing domestic forces to compete for the international market. This "strategic" shift is a severe challenge to the developing Chinese nation with its relatively backward industrial base and financial difficulties, especially to our socialist China. However, it is also a challenge we are compelled to overcome. Although we can take advantage of favorable international conditions and shorten the transition process by importing technology, those countries that see China as a potential enemy or adversary will not readily sell us highly sensitive technology. We must rely on our own resources. Since we can depend on the party's leadership, give full play to the superiority of the socialist system, and master sophisticated technology, including rocket delivery systems and artificial satellites, under the unified command of the party and state, we can concentrate superior human, material and financial resources, coordinate major efforts, wage a combined offensive and successfully shift the electronics industry to a new technological base.

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CSO: 5500/4177

PEOPLE'S REPUBLIC OF CHINA

BRIEFS

ELECTRONIC TELEPRINTERS MARKETED--Shanghai, 2 Feb (XINHUA)--The multipurpose PACT 220 electronic teleprinters, China's most advanced, have been marketed at home and abroad since the latter part of January this year. The teleprinter is produced by the Shanghai Telecommunications Equipment Factory of the Ministry of Posts and Telecommunications in cooperation with the Swedish Philips Electronic Industry Company. [Summary] [Beijing XINHUA Domestic Service in Chinese 0125 GMT 2 Feb 84 OW]

INFORMATION NETWORK INAUGURATED--The optical communication technology information network of the Ministry of Posts and Telecommunications was established at a meeting held in Wuhan during November 1983. The network inaugural meeting and the second national optical communications academic conference took place simultaneously. Representatives of members of various networks participated at the academic meeting. The leaders and deputy leaders of various network units were elected and the work regulations and planned 1984 activities of the network were approved. Plans for 1984 are: 1) Network members will fill out survey forms about their respective situations, which will be compiled into book form so that the network members may exchange information; 2) Training classes will be held in Wuhan during May to popularize optical communication technology; 3) An analytical discussion meeting on the topic of optical communications information is scheduled for the second half of 1984. [Text] [Beijing DIANXIN JISHU [TELECOMMUNICATION TECHNOLOGY] in Chinese No 12, 1983 p 47]

SHANXI RADIO RELAY STATION--The medium-wave radio relay station project in Luliang Prefecture, Shanxi Province, was completed by the end of 1983. [Summary] [SK180414 Taiyuan SHANXI RIBAO in Chinese 23 Jan 84 p 2]

JILIN TELEPHONE INSTALLATION--In 1983, Jilin Province installed some 14,800 automatic telephones in cities and counties, added 140 long distance telephone lines, and opened direct telephone service to Guangzhou, Hankou, Xian, Benxi, and Jiamusi cities. Some 12 counties in the province installed automatic telephone switchboards. [Summary] [Changchun Jilin Provincial Service in Mandarin 2200 GMT 17 Feb 84 SK]

HEILONGJIANG MICROWAVE BRANCH LINES--By the end of 1983, 3 microwave branch lines able to serve all TV programs had been set up in Mudanjiang City and 7 counties and 1 city under the jurisdiction of Mudanjiang Prefecture in Heilongjiang Province. Over 3 million people living in these places can receive color TV programs and 70 percent of them can choose between programs from the Central TV Station and the Heilongjiang TV Station. [Summary]  
[Harbin Heilongjiang Provincial Service in Mandarin 1000 GMT 19 Feb 84 SK]

CSO: 5500/4175

BANGLADESH

BRIEFS

TANGAIL TELEPHONE EXCHANGE--TANGAIL, Jan 15. The one thousand line electro motor devise auto telephone exchange has started functioning in Tangail on experimental basis, reports BSS. On the opening day on Thursday a milad was arranged which was attended among others by the General Manager Director Telegraphs and Divisional Engineers and local elite. This exchange has been converted from 400 cross bar to this EMD system. It is learnt that this exchange will be included in the national aide dialing system within very short time. [Text] [Dhaka THE BANGLADESH TIMES in English 10 Jan 84 p 2]

CSO: 5500/7096

## DEFENSE MINISTER OPENS NEW EXCHANGE IN MADRAS

Madras THE HINDU in English 21 Jan 84 p 12

[Text]

MADRAS, Jan. 20. The quality of telecommunications services had to be improved. A national plan was needed for upgrading maintenance with the help of adequately trained staff, logistical support and efficient management of the available resources, said the Defence Minister, Mr. R. Venkataraman in a speech read out in his absence at the inauguration of the Electronic Telex Exchange here today.

The Minister said that in this context, the P & T Department's decision to go in for the latest technologies was a move in the right direction. Use of satellites had made quality telecom services possible in rural and remote areas at a very reasonable cost. Similarly, introduction of electronic exchanges based on computer technology was going to transform the status of telecom service.

Mr. Venkataraman hoped that the new electronic exchange in Madras would fulfil the dream of the business and industrial community to have an effective and efficient telex network.

Though the investment required to make telecommunications service on par with that in developed countries would be staggering this should not deter the people concerned. But there had been a steady downturn in the financial outlays for telecom development. To reverse this trend, the Union Communications Ministry should develop internal planning capabilities and design in advance projects for submission to the Planning Commission, Finance Ministry and international financial institutions to get more funds.

Mr. Venkataraman's speech was read by Mr.

T. S. Subramanian, Member, Telecommunications Development, P & T Board, New Delhi.

Mr. K. Rajaram, Speaker, Tamil Nadu Assembly, inaugurated the Electronic Trunk Automatic Exchange. Since progress in communications connoted progress of civilisation, efforts should be made to provide trouble-free telecom service to the people.

Welcoming the gathering, Mr. K. C. Ramadoss, General Manager, Madras Telephones, said the two exchanges that were commissioned would herald the advent of the electronic switching era in the South.

The Stored Programme Controlled Telex Exchange with equipment supplied by Siemens of Germany at a cost of Rs. 4.65 crores had 2200 lines for transit, working and 1500 local lines. Subscribers who had been waiting patiently for a telex connection since 1978, would be happy to note that with the commissioning of this exchange, all the pending priority connections would be provided within a week. The entire waiting list for such connections would be wiped out within the coming two months. The entire cost of this exchange was Rs. 7 crores.

The Stored Programme Controlled Electronic Trunk Automatic Exchange in the new Flower Bazaar Exchange has equipment supplied by NEC of Japan at a cost of Rs. 4.5 crores. This exchange with 4000 lines would replace the existing crossbar type trunk automatic exchange of 1750 lines. The entire project cost was Rs. 6.15 crores.

Mr. R. Gopalakrishnan, Deputy General Manager, (Telex), Madras Telephones proposed a vote of thanks.

CSO: 5500/7098

## COMMUNICATIONS OFFICIAL TELLS RECENT DEVELOPMENTS

Madras THE HINDU in English 24 Jan 84 p 11

[Text]

COCHIN, Jan. 23.

Another tele-conference via Insat-IB is to be organised on February 12 when the Prime Minister, Mrs. Indira Gandhi, visits Hassan, where the Master Control Centre of the satellite is located.

Mr. K. Thomas Korah, Secretary, Ministry of Communications and Director-General, Posts and Telegraphs, told pressmen here today that scientists in far away places like New Delhi, Ahmedabad and other centres would be linked in a TV hook up for discussions.

A similar tele-conference was held soon after the Indian communication satellite was made operational.

**First digital exchange:** The first digital trunk automatic exchange, the most modern one to be manufactured at the Palghat unit of the ITI, would be installed in Cochin by the middle of next year.

On the proposed expansion plan of the P and T and telephone departments, he said approval had been received for connecting the United Arab Emirates with a submarine cable, similar to the one between Madras and Penang. Through the Madras, Penang circuit, direct dialling facilities would be made available to Japan and Hong Kong shortly.

**Cheaper cable:** Mr. Korah referred to the development of a cheaper underwater cable by the Ernakulam telephones. The cable which had been successfully tried to link Ernakulam with the new oil tanker terminal at the Cochin port would be utilised to provide telephone lines to

the various isolated islands around Ernakulam.

There were 7.5 lakh persons on the waiting list for telephone connection in the country. In Kerala the figure was 40,000. By 1990 the department would be able to provide connections on demand.

A proposal to install an additional 40-lakh lines had been submitted to the Planning Commission.

An agreement had been signed for collaboration with an Italian company for manufacturing a million telephone instruments. They would be manufactured partly in Bangalore and partly at Naini near Allahabad, Mr. Korah said. — Our Staff Reporter.

CSO: 5500/7099

## EASTERN REGION BENEFITS MOST FROM INSAT-1B

Calcutta THE STATESMAN in English 26 Jan 84 p 13

[Text] NEW DELHI, Jan. 25.--The multi-purpose communication satellite, INSAT-1B, which became operational on October 15, is claimed to have established, in the first phase of its utilization, a near-perfect communication link between important centres in the eastern region.

Of the 28 earth stations linked to the satellite 12 are in that region. Calcutta and Shilong are among what are described as "main" stations, with 11-metre diameter antennae, Patna and Bhubaneswar are among the "primary" stations, each with a 7.5-metre antenna. Eight more centres--Aizawl, Imphal, Kohima, Agartala, Itanagar, Gangtok, Port Blair and Car Nicobar--are what are called "remote" stations each with a 4.5-metre antenna.

All these stations are now linked through the satellite to each other and to New Delhi. Centres like Port Blair had until three months ago no such communication facility. Telegrams for Port Blair used to be airlifted by the Indian Airlines. Now it has instant and multiple telecommunication links, thanks to INSAT-1B.

At least four more Earth stations are planned in the eastern region during this year, to further consolidate the present communication link in that region. "The eastern region can be said to have derived the utmost advantage from this satellite" the Post and Telegraphs officials say.

Such remote area communication, as in that region, and intercity communication are the principal benefits conferred by the satellite, according to them.

Actually, the satellite has just begun to be used. During the past three months, some 800 voice circuits, out of the total of 4,000 have been utilized. By the middle of this year, another 800 circuits are expected to be brought into use, and the rest before the end of next year.

These, incidentally, are voice channels, each of which can accommodate 24 telegraph circuits.

The other "main" earth stations are at New Delhi, Bombay and Madras, and the other "primary" stations at Jullundur Lucknow, Jaipur, Ahmedabad, Hyderabad and Ernakulam. Of the 15 remote stations eight are in the eastern region. The rest are at Minicoy, Kavaratti, Bhuj, Panjim, Jodhpur, Leh and Srinagar.

Through the satellite any of these stations can be connected with any other instantaneously. Also, while terrestrial links, such as the coaxial and microwave links, are prone to interruptions, the satellite link is free from any kind of interruption, and is therefore qualitatively better.

Officials note that at present work is going on to connect local exchanges in each centre with its trunk automatic exchange or--as in the case of metropolises like Calcutta, Delhi, Bombay and Madras--with the newly introduced electronic exchanges called stored programmed control trunk automatic exchanges. When that process is complete, the satellite link will prove of even greater benefit.

The country's total telecommunications network capacity is of 50,000 circuits. INSAT-1B, with 4,000 circuits, is only a small segment of that network. Yet, as officials add, it is "a very significant segment".

CSO: 5500/7101

## INDIA

## MINISTER TELLS PLANS FOR TAMIL NADU RADIO, TELEVISION

Madras THE HINDU in English 20 Jan 84 p 1

[Text] TIBUCHI Jan. 19

TIRUCHI, Jan. 19.  
The television network will be extended to cover all the 16 districts in Tamil Nadu by the end of 1984, Mr. H. K. L. Bhagat, Union Information and Broadcasting Minister, announced today at a press conference at the AIR station here.

From the present 18.8 per cent TV coverage as against the national average of 21 per cent, the coverage in Tamil Nadu would go up to 86.7 per cent as against the national average of 70 per cent at the end of this calendar year, when HP and LP TV transmitters in Madras, Kodaikanal, Tiruchi, Salem, Vellore, Kumbakonam, Coimbatore and Tirunelveli were installed, he said.

**Population coverage:** Out of the 482.97-lakh population of Tamil Nadu, 418.74 lakhs would have the facility of television viewing, as against the existing coverage of just 90.53 lakhs.

Civil works for erection of the 150-metre high TV tower at Kodai would be completed by March, 1984. The Doordarshan had also sought the assistance of the P and T Department for linking the TV transmitter at Kodaikanal with the microwave network. Kodaikanal would cover an area of 86,600 sq.km., an urban population of 67.28 lakhs and rural population of 194.84 lakhs.

**Colour OB van for Madras:** Replying to questions, the Minister said a colour outside broadcast van, fitted with powerful cameras for col-

had advised his Ministry to organise workshops to get its experts like cameramen, newsmen, designers, and others in the Doordarshan, exposed to the latest techniques and technology.

The Film Censor Board had been given clear guidelines and if obscenity still persisted in films, it would only mean that the decisions of the Board were not enforced and the enforcing authorities were not observing the rules and regulations.

**Film co-production:** When a newsman asked him whether his Ministry would encourage co-production in films like "Gandhi", Mr. Bhagat replied, "We are always prepared for co-

our pictures, had been sought for improving the quality of Madras Doordarshan programmes. Madras Doordarshan had been provided with colour filming cameras and the Thyagaraja aradhana festival and the connected concerts at Tiruvaiyaru would be transmitted in colour.

**Educational telecasts:** Mr. Bhagat considered the installation in one year of 180 TV transmitters all over the country from the just 40, installed for the Asian Games eve, is a record achievement. "Our long range plan is to create a separate TV channel for educational programmes on the sophisticated technology and scientific advances", the Minister said.

**Powerful transmitter for Madras AIR:** Madras AIR would soon have a powerful 200 KW transmitter to replace the present 20 KW transmitter for which the Centre had cleared a Rs. 204.3-lakh project. The full-fledged radio station at Madurai would be ready for commissioning during 1984-85 for which a Rs. 132.40-lakh project was being implemented.

Nagercoil also would have an AIR station for which an outlay of Rs. 43.10 lakhs had been approved. The Tirunelveli AIR station would be upgraded into a full-fledged one from 1984-85. Thus, by the end of the Sixth Plan period, the radio coverage in Tamil Nadu would rise to 97 per cent against the national average of 95 per cent, Mr. Bhagat said. The broadcasting programmes, both on AIR and Doordarshan, would be a judicious mix of "education, information and entertainment".

**Workshop for personnel:** Mr. Bhagat said he

production. But where are the topics, and who are all coming forward?"

He replied in the negative when a newsman asked him whether the national Opposition leaders would be invited to talk and telecast their impressions of the four-year regime of Mrs. Gandhi in reply to her broadcast.

Mr. Bhagat later went round the AIR studios, and held discussions with Mr. T. V. Balakrishnan, Superintending Engineer, and Mr. S. Subramony, Station Director, AIR, Tiruchi.

Our Thanjavur Staff Reporter writes:

Thanjavur will definitely get television facility with the commissioning of the powerful television transmitter at Kodai Kanal, Mr. H. K. L. Bhagat, Union Minister for Information, said.

Thanjavur would also be in a position to get TV transmission from Tiruchi and Kumbakonam.

CSO: 5500/7097

VERY LOW FREQUENCY RADIO TRANSMITTER PLANNED

Madras THE HINDU in English 20 Jan 84 p 7

[Text]

TIRUNELVELI, Jan. 19.

A very low frequency communication station which will enable the naval authorities to pass messages to submarines even while they are operating deep under water at long ranges is being established at Vijayanarayananam in Nanguneri taluk, 40 km from Tirunelveli.

The Defence Minister, Mr. R. Venkataraman who laid today the foundation stone for the station said that this communication station apart from improving the country's defence capability would give opportunities for ancillary industries and other activities to come up. This would help to spread and diffuse the benefits of the electronic technology revolution in the countryside.

The commissioning of this station he said would go a long way in enhancing the operational capabilities of the Navy to guard the coastline as also the country's exclusive economic zone.

He said the Government had put in a considerable amount of effort in planning this station and this site had been selected from among a large number after a careful analysis. Mr. Venkataraman was glad that the Tamil Nadu Government had extended all help to the project authorities in acquiring private land and had also given some Government land free of cost.

Dr. V. S. Arunachalam, Scientific Adviser to the Defence Minister, said the technology now being adopted was highly advanced and only two or three countries in the world possessed this. The project — "Project Skylark" — would

equip the Navy with a very reliable system of communication.

Admiral O. S. Dawson, Chief of the Naval Staff, said the VLF was an important technology of communication to meet the Navy's expanding responsibilities in the ocean. The project location was significant in view of the threats being thrust upon the country from the region. He hoped the project ready scheduled to be completed in 1986 would be even earlier.

Mr. K. T. Kosalram, MP, said the project when completed would help remove a long nursed feeling that there was no substantial defence base in Tamil Nadu. He urged the execution of Sethusamudram project as one of the vital defence needs. Referring to the proposal to establish another nuclear power plant in the South he said the people of Koodankulam village in the district were prepared to offer the necessary land for setting up the plant.

The 'Project Skylark' is to be established on a site of about 3000 acres. The Tamil Nadu Government has given 600 acres free of cost to the Navy for the purpose.

On arrival at the site the Defence Minister was received by Commodore S. K. Chand, Director of the Project.

CSO: 5500/7097

INDIA

BRIEFS

TELEPHONE EXCHANGE INAUGURATED--ASSURANCE ON TELE-LINK OPTI): The Union minister of state for communications. Mr. V. N. Gadgil said on Monday that the target of his ministry for 1990 was that no person would be required to go more than five km for telecommunication facility. Inaugurating the Rs. 27-lakh 400-line-automatic telephone exchange with subscriber trunk dialing facility (STD) at Sangareddy, the district headquarters of Medak--40 km from Hyderabad Mr. Gadgil said that the Institute of Economic Growth was entrusted with the task of chalking out the schemes to achieve the target. [Text] [Bombay THE TIMES OF INDIA in English 25 Jan 84 p 13]

CSO: 5500/7100

## TELEPHONE COMPANY INSTALLS NEW MICROWAVE NETWORK

Baghdad THE BAGHDAD OBSERVER in English 16 Dec 83 p 4

[Article by Abdul Majeed]

[Text]

**More than 20,000 telephone sets were set-up during the last four months. This number equals all the work that had been done during the last two years by the State Establishment for Post, Telegram and Telephones.**

Iraq is witnessing concerted efforts to set up new telephone networks. Citizens in Baghdad and in other parts of the country have noticed considerable improvement in telephone services in new telephone exchanges in particular.

The Establishment's new plan aims at meeting the citizens' applications for new telephones submitted before April 1983.

The telephones were installed Furat, Jihad, Al-Amel, Seidia and Al-Risala districts of the city. Other areas include Al-Ameria, Al-Iktisadeen.

Work on telephone lines started progressively in areas on the Baghdad outskirts towards the capital's centre. 50 percent of those orders will be implemented by the end of the current year.

All orders for telephones submitted before April 1983 will be met by the middle of next year.

"By the end of this year, Iraqi citizens will feel the new improvement as far as telephone calls are concerned" says Mr Meyser Hamdoun, head of the State Establishment for Posts, Telegrammes and Telephones.

Modernizing telephone services in Iraq was done by installation of electronic exchanges and a number of microwave systems to inter-connect the Exchanges.

Laser ray is the most advanced method used in the

field of telephone services not only in the country but in 20,000 lines. Other exchanges were connected by microwave systems.

All this work comes within the framework of the first stage. The second stage will be implemented by mid 1984.

These efforts will certainly help in shifting Iraq to the position of developed countries as far as telephone services are concerned. The Establishment aims at providing 400,000 telephone lines in Baghdad before mid 1984.

A new telephone — exchange will soon be set up in Saddam Town with a capacity of 20,000 lines. All other telephone lines in Adhamiya area in Baghdad. Accordingly, intensive efforts are being exerted so as to replace the old exchange with a modern electronic one with 20,000 lines. All orders for new telephone sets are hoped to be met in 1984.

In Ta'meem Province, old exchanges will be removed and new ones will be installed with a capacity of 22,000 lines in addition to the currently existing 7,500 lines.

As for rural areas, work is going to provide better services and to bridge the gap between services in cities and the countryside.

The Establishment takes into consideration similar needs for telephone services in the countryside.

The Iraqi countryside is now connected with modern telephone exchanges. In this context, 67,000 lines were operational in Iraqi districts and sub-districts. Another 33,000 lines will be added by the end of this year.

Areas that will get use of telephone services include Al-Taz, Dujeil, Amadia, Hamza, and Afig.

The first stage of Abu Ghraib exchange operated early this month with a capacity of one thousand lines that will be followed by ten thousand lines.

A microwave chain will connect areas east and west of river Tigris so as to facilitate the dissemination of TV programmes and telephone calls between provinces that fall within this area.

As for external telephone contacts, Iraq has an advanced telephone service that is made possible through three satellites.

It is worth mentioning that Iraq and Algeria are the only third world countries that have three ground stations having contact with these satellites that provide telephone and TV services. These stations and all other affiliated departments are fully operated by Iraqis.

On the other hand, the Establishment has distributed new local and international post boxes. Certain dates for mail collection has been fixed. The Establishment is studying the possibility of mechanizing post services so as to have a more quick mail service. It is to be noted here that 400,000 letters are distributed daily.

CSO: 5500/4506

PAKISTAN

RADIO STATION, TV BOOSTERS IN NWFP PLANNED

Karachi BUSINESS RECORDER in English 2 Feb 84 p 3

[Text]

PESHAWAR, Feb. 1: The Federal Information and Broadcasting Secretary Lt.-Gen. Mujibur Rehman has said that the federal government had several plans for the development of radio and television in NWFP.

Talking to the Editors and working journalists, here today, after a meeting with the Provincial Governor, Lt.-Gen. Fazle Haq, he said that these plans included setting up of small broadcasting stations and installation of new boosters to enable the radio and television services to cover the whole of the province.

He said that he had discussed these plans with the Provincial Governor.

About radio, he said that the federal government proposed to set up small broadcasting stations, with 15 to 20 mile range, a Hazra and Swat within a year subject to the availability of funds.

About the new Broadcasting House of Peshawar he hoped that the civil works would be completed by March or April next and after installation of machinery, it will be inaugurated on August 14 next, he said.

Discussing the development plans of television, he said the government proposed to set up transmitters at Skaser and Thandiani within a year. Besides installation of boosters at Malakand and Swat was also on the list, he said. Boosters to cover the areas of Parachinar and Chitral were also under construction, he added.—APP.

CSO: 5500/4714

PAKISTAN

SALE OF TELEPHONE EXCHANGES TO PRIVATE SECTOR PLANNED

Karachi BUSINESS RECORDER in English 2 Feb 84 pp 1, 3

[Text] The telephone exchanges in Karachi will be put on sale with a view to inviting the private sector to enter the field of tele-communication in Pakistan.

Karachi Tele-communication Region General Manager Press conference yesterday that the invitation to the private sector is being extended in pursuance of the Government policy for participation of private entrepreneurs in tele-communications during the Sixth Five-Year Plan period.

Initially, he said two telephone exchanges would be offered to the private sector on an experimental basis to see whether this sector would be able to operate them successfully.

The cost of one exchange of 25,000 telephone connections would be about Rs 12 crore. It was now for the entrepreneurs to come forward and undertake this job, he said.

To a question, he said that the blue-print of the scheme was available in the office of the Director General of the T&T Department at Islamabad. On the purchase of staff could also be transferred to the new management, he said.

To another question about tough competition between the public and private sectors in respect of telephone charges, better services etc. the City telephone chief said that telephone rates would be fixed by the Government and once the rates went up they could not be brought down.

Besides developed countries, he said, the private sector was running the telephone system in Singapore and Korea also.

CSO: 550-/4714

PAKISTAN

BRIEFS

COLLABORATION WITH UNIVERSITIES PLANNED--Lahore, Feb 5--The Space and Upper Atmosphere Research Commission (SUPARCO) is mapping out a comprehensive plan to collaborate with universities and industrial establishments in order to step up the pace of scientific research and development in the country. The SUPARCO, according to SUPARCO sources, will assign various research projects to the universities and pay them commensurate financial assistance. In this way, the SUPARCO will benefit from the scientists' talents and the universities will get enough money for more research facilities. The SUPARCO will also acquire the services of university scientists for research at the Karachi-based organisation. To encourage the students to take more interest in science and technology, the SUPARCO has decided to award special scholarships to the brilliant students at all levels. They will also be assisted in continuation of their higher studies, even up to the post-graduation. SUPARCO sources hope that the scholarship scheme will work as an incentive and help in scientific research.--PPI [Text] [Karachi MORNING NEWS in English 6 Feb 84 p 5]

SATELLITE GROUND RECEIVING STATION--The executive committee of the space research council and the upper atmosphere research commission meeting in Karachi today approved a number of development projects of the space and upper atmosphere research commission. They include the establishment of a satellite ground receiving station. It is meant for the reception of satellite remote sensing data for the identification of new natural resources as well as their optimum utilization. It is estimated to cost 200 million rupees and is expected to be operational by the end of next year. The meeting was presided over by the federal finance minister, Mr Ghulam Ishaq Khan. [Text] [Karachi Domestic Service in English 12 Feb 84 BK]

CSO: 5500/4715

MALAWI

BRIEFS

MICROWAVE TO IMPROVE SYSTEM--Blantyre, Lilongwe and Mzuzu are to be linked by microwave to improve telephone, telex and radio communications, the Malawi News reported yesterday. The agency said, Mr. Kenji Maekawa, general manager (Africa division) of Nippon Electrical Corporation arrived in Malawi last Saturday heading a three man team for three days of talks with government officials on the microwave project which is expected to bring Blantyre, Lilongwe and Mzuzu closer in communication. "I am here to discuss initial financial arrangements with the government here," he said. No figures have been worked out yet, and Mr. Maekawa will fly back to Tokyo next week for similar talks with his government. Nippon is at the moment installing another microwave facility in the border district of Mchinji. That project will improve Malawi's communication links with Zambia and the outside world. "I have also come to inspect progress of the microwave station now under construction to link Lilongwe with Chipata in Zambia." Nippon also built the Kanjedza earth station in Blantyre and the company is involved in several projects in Malawi. Mr. Maekawa will be joined in the discussions by Mr. Yasushi Yokoo, sales and marketing manager of Nippon responsible for the African region and Mr. Kienosuke Koike, the company's Nairobi based chief representative for Africa. [Text] [Blantyre DAILY TIMES in English 30 Jan 84 p 1]

CSO: 5500/46

## SURVEY SHOWS SABC-TV PLAYS DOWN SA CONFLICTS

Johannesburg THE STAR in English 2 Feb 84 p 7M

[Text] CAPE TOWN — SABC-TV is said to play an important role in maintaining the current political system by contending that public consensus exists on contentious issues and by minimising conflict in South Africa.

This is a finding of the first phase of a research project by Mrs Karen Honikman of the University of Cape Town's professional communication unit, in co-operation with Mrs Mana Slabbert of the UCT institute of criminology.

The research, which focuses on the presentation of social conflict in the media and its effects on the perception of social conflict by young adults, is part of an international project which also involves Britain, the United States, West Germany and Israel.

### ANALYSIS

The first phase of the three-phase project was recently completed and consists of a content analysis of SABC-TV news coverage during a three-week period in December 1980.

A similar analysis was done at the same time of four South African newspapers — The Argus, Die Burger, Hoofstad and the Rand Daily Mail — which were used as controls.

Among the findings of

the first phase of the study are:

- Foreign conflict issues on SABC-TV were emphasised to a much higher degree than domestic conflict issues.
- The amount of physical aggression shown was about 20 times more in foreign conflict situations than in domestic.
- The media, in particular SABC-TV, reflected and maintained public consensus. Instead of admitting that there were conflicting groups and ideas in society, an image was created of a general consensus on problems in society.

● Domestic conflict issues were not only less prominent but many issues were omitted from television news though covered extensively by the English-language Press, to some extent by Die Burger and to a limited extent by Hoofstad.

Pertinent issues omitted by SABC-TV during the time of the analysis included:

- Criticisms of black exclusion from the President's Council.
- Incidents preventing groups sharing the same venue such as bannings from restaurants.
- Detentions and responses of pressure groups to such detentions.
- Group Area removals.
- Reactions to black school boycotts.

At the same time as SABC-TV omitted criticisms of domestic conflict issues concerning Government policies and practices, it focused on foreign conflict issues in this regard, in particular negative commentary on the black government in Zimbabwe.

### NEGATIVE

According to the report, the rationale for omitting such items could not be a lack of time as sports bulletins and bulletins on natural disasters and accidents jointly received double the time given to bulletins on internal politics.

It also states that SABC-TV showed conflicting parties in South Africa being willing to negotiate or compromise twice as often as conflicting parties in other countries.

"The way in which social conflicts are presented portrays domestic conflict issues in a more favourable light — as if answers are readily available for the problems or issues."

### SOCIAL CONFLICT

"This could imply a biased interpretation, but more research needs to be done to verify this suggestion. When the study is completed, more light will hopefully be shed on this matter," the researchers said.

SOVIET BLOC SEEN FACING 'FULL-SCALE INFORMATION AND PROPAGANDA INVASION'

Moscow INTERNATIONAL AFFAIRS in English No 1, Jan 84 pp 137-139

[Article by V. Filippov: "Imperialist Brigandage on the Air"]

[Text]

The imperialist bourgeoisie is engaged in a psychological warfare against the USSR and the other socialist countries, against newly-free states and other revolutionary forces.

Radio propaganda has become the main instrument in that warfare. The June 1983 Plenary Meeting of the CPSU Central Committee noted that "the adversary is practising veritable banditry on the air. We face attempts to organize a full-scale information and propaganda invasion against us, and to make radio and TV stations an instrument of intervention in the internal affairs of states, an instrument of subversion." At present, 400 anti-Soviet centres are functioning abroad, and some 40 foreign radio stations are broadcasting their daily programmes beamed to this country in 23 languages of the peoples of the USSR, with the total time devoted to these radiobroadcasts running into 200-odd hours per day. 326 radio transmitters and 36 television relay stations have been built in the FRG along its borders with Czechoslovakia and the GDR. Poland is literally pounded by turbid waves of Western radio programmes broadcast in Polish for 38 hours a day.

According to the Department of State, the American radio stations alone broadcast in 46 languages for 1,924 hours a week.

Two organizations in the USA are formally engaged in foreign-policy propaganda

through the radio broadcasting system—the United States Information Agency (USIA) which is in charge of the Voice of America, and the International Broadcasting Council which is closely linked with the CIA and controls the activities of Radio Liberty, Radio Free Europe, and Radio Free Kabul. The latter was opened up within the framework of the ideological "crusade" against communism, plotted by the Reagan Administration, and became its new mouthpiece in the "cold war of words" on the air.

The Voice of America is the largest and most powerful among the above-listed radio stations. At present, it broadcasts in 42 languages through 107 transmitting stations scattered all over the world. The Soviet people and the peoples of socialist countries are the principal target of the radio propaganda carried on by the VOA. According to official data, the volume of radio broadcasting for socialist countries averages 1,332 hours per week. The events transpired in the Polish People's Republic gave rise to a very real undeclared war on the air against this sovereign state. The campaign of slander was particularly exacerbated after the introduction of martial law in the country of December 13, 1981. While prior to that date the Voice of America's average daily broadcasting time in Polish was 2.5 hours, starting from December 31 it went up to 7 hours.

The Voice of America has been most active in the anti-Soviet hysteria raised in

the USA regarding the provocative intrusion of the South Korean airliner into Soviet air space. According to Director of the US Information Agency Charles Wick, the radio station's daily broadcasting time has been on the rise since the airliner incident. At the same time, the Voice of America has increased the number of radio transmitters broadcasting to the Soviet Union as well as the number of frequencies allotted for its radio programmes. As a result, the Russian-language broadcasting time has grown by 25 per cent. Wick added that about 30 per cent of daily newscasts by the Voice of America were devoted to the incident with the South Korean jumbo jet.

Washington spares neither time nor effort to organize and stage ideological sabotage on the air against socialist countries. In 1983, Congress allocated \$644 million to the USIA, with \$250 million earmarked to the Voice of America; while in the 1984 fiscal year an even greater sum of money is scheduled to go to the USIA—\$711.4 million, and the funds to the Voice of America will be up by 30 per cent against the preceding year.

These allocations are primarily used for retooling the propaganda machinery and for broadening the broadcasting range. For instance, a branch of the Voice of America was established in Egypt for the purposes of additional radiocasting to the Central Asian Republics of the USSR and to the areas adjacent to the Persian Gulf and Afghanistan. The authorities of the Republic of Sri Lanka were unable to withstand the pressure brought to bear by the United States and gave it the go-ahead to open up a VOA branch on its territory to put on the air radio programmes designed for the countries of Southeast Asia and Indochina.

At present, USA officials are planning to establish, by the end of this decade, a comprehensive network of radio transmitters scattered all over the world. The radio station's technical department has organized a special team of experts to prepare a detailed analysis of all the hardware available to the Voice of America for its international broadcasting—antennas and transmitters, and power-supply units. A second group of the same department is studying the technical characteristics of the already functioning transmitting stations and their geographical location. Apart from that, it

is to determine what areas, strategically and politically important to the USA, have not yet been covered by American broadcasting. The reports and recommendations to be worked out by the two teams are supposed to lay the groundwork for a project designed to modernize the Voice of America and establish a global broadcasting network.

The Voice of America coordinates its subversive activities in the international arena with another centre of ideological sabotage—the International Broadcasting Council (IBC) set up in 1974 under the chairmanship of the USIA former Director under the Nixon Administration and a rabid anti-Soviet, Frank Shakespeare. The Council's membership includes close friends and allies of the current White House chief, in particular the President of the US largest trade union association, AFL-CIO, Lane Kirkland. The Council is formally subordinated to the International Relations Committee under the House of Representatives of the US Congress, to which the IBC leadership submits its annual reports, but in reality it is a body of the CIA.

The Soviet and foreign press has written a great deal about Radio Liberty and Radio Free Europe, therefore, we shall dwell mostly on new ideological sabotage centres established by the current US Administration.

Within the framework of Project Truth on September 12, 1981, the US President submitted to Congress a bill on establishing a "sister station" of the Munich radio stations in Latin America, primarily for broadcasting to Cuba. Under the White House plans, the new radio station is to carry on subversive activities against the existing regimes in Cuba and Nicaragua and to hamper the development of the revolutionary process in Latin America. The American government asked Congress for over \$10 million for the construction of the radio station, including \$4.2 million for the installation of transmitters and \$7.2 million for current expenses.

In September 1983 the Senate approved a government-sponsored bill on the establishment of an anti-Cuban radio station which is to conduct psychological warfare against Cuba. For the sake of a "compromise", or rather for the sake of camouflage, it was decided that the radio station would not be subordinated to the IBC but would form a section of the Voice of America.

This masquerade certainly does not change its essence, since the new radio saboteurs have the self-same old real master—the CIA.

The new-born radio station, named Radio Martí, has been allotted about 14 hours a day for its short- and medium-wave broadcasts to Cuba. It will be located in the State of Florida which is the traditional gathering place for all "déclassés", from Cuban émigrés to former myrmidons of Somoza who fled Nicaragua.

Imperialism continues its large-scale "undeclared war" against Afghanistan. American money is used not only to purchase arms and munitions for the anti-government rebels but also to set up a ramified system of ideological indoctrination. Its main link is Radio Free Kabul, founded by the United States and situated on Pakistani territory. It has at its disposal 11 fixed radio transmitters located in the vicinity of the Pakistani-Afghan border. Cassettes with slanderous tape-recordings in the Pashto and Dari languages are fabricated in some West European countries and in the "refugee" camps in Pakistan. "Materials" for provocative radio broadcasts are borrowed from the Voice of America and from other

Western radio stations. The station's staff largely includes the chieftains of the dushman groups which carry out armed raids into the territory of the Democratic Republic of Afghanistan.

Apart from American subversive radio centres, the information and propaganda intervention against the Soviet Union and other socialist countries involves the active participation of the BBC, the German Wave, Radio Vatican and other "voices" and "supporting voices" in NATO countries and of their ideological allies. Flagrantly violating the elementary norms of international law, in particular the International Covenant on Civil and Political Rights adopted by the United Nations in 1966, they are unceremoniously interfering in the internal affairs of sovereign states and sowing the seeds of enmity and hatred among countries and peoples. Normal development of international relations imperatively demands that an end should be put to the imperialist brigandage on the air.

V. FILIPPOV

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FINLAND

NORDIC COUNTRIES' AUTOMATED MOBILE PHONE NET EXPANDS

Helsinki HELSINGIN SANOMAT in Finnish 17 Jan 84 p 15

[Article: "The Nordic Mobile Telephone Net Operational in Oulu Area, Will Expand to Northern Finland by Autumn"]

[Text] The first support station of the Nordic automated mobile phone system of northern Finland was activated in Oulu on Thursday.

Automatic car telephones can be used in Oulu and neighboring communities. By autumn the operational area will include the entire western seaboard and the Tornio river basin as well as the Rovaniemi vicinity in addition to southern Finland.

The mutual NMT [Nordic Mobile Telephone] system serving all the Nordic countries will be fully operational throughout Finland by the end of the decade.

The construction and utilization of the automated system in the Helsinki vicinity which was begun in 1982 has progressed beyond expectations according to General Manager Pekka Tarjanne.

"The Helsinki area traffic is many times greater than anticipated," says Tarjanne. The situation in the capital region, in his view, is satisfactory and backlogs of traffic occur only during the worst seasons.

Tarjanne admits that the automated mobile phone service probably will not provide as high a quality as that attained in regular automated calls.

The pressure of the manually transmitted mobile phone traffic as well as the great demand has speeded up the automated mobile phone net in Tarjanne's opinion. About 60,000 calls are transmitted each month by the Oulu mobile phone central alone. District Engineer Heikki Hakalin reveals that several dozens of temporary workers have been hired to reduce traffic congestion.

In Finland 9,000 NMT Telephones

Automated mobile phones have increased markedly in the Nordic countries notwithstanding their brief existence. Despite the limited service area of

NMT phones in Finland, 9,000 are in use and the number will double by year's end. Already a total of 75,000 new phones are in use throughout the Nordic countries.

An individual can make a call by automated mobile phone from one Nordic country to another. However, the prerequisite for making the connection is that the vehicle is within the audibility range of an NMT support station. Mobile phones in areas of manual equipment cannot yet use the new system.

The manual mobile telephone network will be operating side by side with the automated system at least until the end of the decade. Thereafter, the network will shift to some other application.

#### Private Subscriptions Begin at the End of 1984

The Post and Telegraph Administration will start setting up the so-called telecommunications system as a totally new service by the end of the current year. The construction will commence in the capital city vicinity and will expand through the largest population areas. The private subscription communications station may come to Oulu, among other places, as early as next year, General Manager Pekka Tarjanne believes.

One and the same subscriber number as well as the communications device will seek out both its carrier and user from whatever direction necessary when the system is fully operational.



The Nordic Automated Mobile Telephone Net Coverage as of January 1984

DOMESTIC OUTLOOK ON U.S. STRATEGIES IN TELECOMMUNICATIONS RACE

U.S., Japanese Competition Viewed

Paris LE MONDE in French 11 Jan 84 pp 1, 44

[Four-part article by Eric Le Boucher and Jean-Michel Quatrepont: "The World Communications War"; "I--The American Offensive"]

[Text] "The United States is engaged in two wars: one against the USSR on the military scene, and the other against Japan on the industrial scene. The USSR is neglecting the industrial aspect to concentrate on arms. Japan is neglecting its army and concentrating all its resources on industry. If the United States wants to preserve its supremacy in these two fields of battle it must dominate the critical sectors. The information technologies (computers and communication) are vital to assuring both its military and industrial supremacy."

These first phrases of a book on the competition between the United States and Japan--"The Amazing Race"--which has received some attention in the United States, reflect the strong renewal of aggressiveness that has been evident for the last 3 years across the Atlantic.

While in France it is the laying off of 1,905 workers at Talbot or the situation of Lorraine steel industry that occupy the government and trade unions, and while Europe is getting bogged down in shopkeeper quarrels, America has jumped with both feet into the communications civilization, without emotionalism, without Byzantine disputes, with abruptness but also with the dynamism that characterizes that country.

The United States has declared an industrial and technological war and is determined to win. The information industry, which represents a market of 150 billion dollars, is expected to grow at an average annual rate of 20 percent and to represent 40 percent of the industrial added value in the year 2000 timeframe.

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\* "The Amazing Race. Winning the Techno-Rivalry with Japan," by William H. Davidson. Edition John Wiley and Sons. New York.

Win the war against a Japanese industrial model that during the 1970's showed an apparent invincibility? Win against Europe, certainly a less formidable opponent, but in which states support and finance their national industries? In 1980 this may have seemed a difficult bet for an America in full crisis. The "deindustrialization" there is a reality, productivity strikingly weak, wages comparatively high, and entire sectors of the economic potential are in decay. Even the high technology sectors are affected. In a few years the Japanese have captured 15 percent of the American market in office automation, 40 percent of general public electronics, 100 percent of videotape recorders, and 10 percent of the very indicative components sector.

The Americans are taking off their gloves and implementing a highly effective strategy, applying first to each of the sectors--computers, telecommunications, integrated circuits, robotics, and military electronics--but also and primarily to communications as a whole. It is no small paradox to see the champion of liberalism applying virtually an industrial policy, including coordination at the highest level, that is, state intervention. Imagine.

#### Aggressive Industrial Strategy

The Department of Defense (DOD) is financing at a cost of 300 million dollars the Very High Speed Integrated Circuits (VHSIC) program, whose aim is to launch the future generation of integrated circuits and outrace the Japanese. A dozen companies are involved, including IBM, AT&T, and Motorola. In a broader category, the DOD regularly increases by 15 percent a year its electronic equipment purchases within its C3 program (Communications, Control, Command). These expenditures can be estimated at 100 billion dollars between 1982 and 1985! A significant share (800 million dollars in 1981) goes to small robotics, computer, and optoelectronic companies. Indeed, it is an obligation. The Federal Government in July 1982 obtained approval of the Small Business Innovation Research Act, which requires each department to devote 1.25 percent of its budget for orders to small companies when the expenditure exceeds 100 million. The United States knows how to rely on its innovative small and medium-size industries.

Also on the big corporations. The Reagan administration, which advertises its ultra-free enterprise principles, now considers that the leading technology sector deserves significant bending of the antitrust laws, the battlehorse of the neoclassical theories. The antitrust proceedings against the computer giant IBM were dropped at the beginning of 1982. In face of the Japanese competition, the Federal Trade Commission has closed its eyes to that same IBM's acquisition of capital of the manufacturer of integrated circuits, Intel. The Department of Justice is now approving joint ventures for electronic research and development.

At the same time, the Department of Commerce is making frequent dumping accusations against the Japanese regarding integrated circuits and telecommunications, and undertaking a political campaign to open the Japanese telecommunications market to American companies. Yet, when Fujitsu won an AT&T contract for fiber optics in 1981, the government intervened to take the

contract away from it. Fujitsu appealed to the Federal Communications Commission, but the appeal was rejected.

#### Reconquest

In software, computers, robotics, telecommunications, in fact on all fronts, structural changes are tending to accelerate innovation. This policy relies on the small and medium-size companies to create innovation and on the giants for mass distribution of them. The two complement each other, and both are helped. To the specific actions for electronics, there are added other, more general ones that benefit the American companies: facilitated raising of new capital--of which the well-known capital-risk Californian is only the most publicized, and the changes in work rules. The top union, the AFL-CIO, lost 800,000 members between 1981 and 1983 (source: William H. Davidson, *op cit*), and a considerable number of wage agreements were revised downward.

This policy has already produced results. While the Europeans are arguing among themselves over the right to be subcontractors for Japanese videotape recorder companies, the American companies, which do not produce any of these machines, are introducing video games and microcomputers. A good part of the general public electronics market has thus been won back. The Americans had been outdone by the Japanese with the 16K memory. They have made up most of their lag with the current generation (64K) and are apparently ahead with the next (256K). In the software field, a large number of small operating companies have emerged, as AT&T is establishing a new world standard (UNIX). For its part, IBM is scoring some points on Fujitsu even in Japan itself.

However, the Americans are aware that when one limits oneself to sectorial battles, the victories are fragile. Japanese labor, as qualified as the American, is still the best bargain, especially with a strong dollar. Even if the United States goes all-out with innovation and robotics in its companies, the experience of the 1970's demonstrated the formidable capability of the Japanese manufacturers to win this kind of battle when they are engaged on the field of productivity. State-industry relations are still so effective in Japan that the American model may be surpassed again at any time.

The convergence of electronic technologies is thus making it possible to open a new front. The various electronic equipment (robots, computers, telephones, word processors) are gradually becoming connectable through digital telecommunication networks. The traditional barriers between computers, television and telecommunications are blurring. Whoever controls the networks and their structure and standards, will have a deciding advantage. The breakup of AT&T on 1 January 1984 marks the beginning of the "war of the networks."

#### Effects of U.S. Deregulation

Paris LE MONDE in French 12 Jan 84 p 34

["II--The Deregulation Shock"]

[Text] Just as sea routes or main roads enabled development of trade, the electronic networks are becoming the driving force of world trade in

information. Each piece of equipment, from robot to microprocessor, videotape recorder to word processor, is being connected to the networks so that it will in future be only one element--a "terminal"--in a comprehensive nerve system of society. Along with the traditional telephone, other networks must be installed for communication between computers and video image links. What form should they be given? Who should install them? Whom should be entrusted to manage them? Should the monopolies of public administrations of telephones be expanded to cover all communications? There are many basic questions for the society of tomorrow. Many questions which the Americans have already answered.

On 1 January 1984, American Telephone and Telegraph was broken up. The result of many considerations, this sweeping decision may have been a surprise. Had not AT&T, the largest corporation in the world, made the American telephone system one of the best in the world? Why break up this force at the height of the struggle against Japan? AT&T had for a century, despite its private enterprise status, enjoyed a kind of "public service" concession for the telephone, in a quasi-monopoly recognized by the government (80 percent of American subscribers).

In fact, telecommunications is not the only sector for which the Reagan administration has modified the laws. Transportation and banks have also undergone a similar "deregulation." The abandonment of monopolies or quasi-monopolies controlled or granted by the government, and the return to regulation "by the market," are implementations of a general political desire of Washington. However, telecommunications have a very particular role in the relaunching of the American economy and in the industrial war undertaken against Japan and Europe.

Breaking up AT&T and restoring competition in the networks was not only a waving of the flag of free enterprise. Deregulation of communications in the United States was primarily a crack of the whip to American industries as a whole, urging them to go out in conquest of the outside world. Has not AT&T, attacked in its hunting grounds, since then signed an agreement with Philips and acquired 25 percent of Olivetti? Also it was to increase the competitiveness of all the major American companies by producing a reduction in cost of information transmission, which represents an increasing proportion of their production costs.

#### Exportable Model

The emergence of new competitors--common carriers--such as MCI, GTE-Sprint, IT&T, or U.S. Telephone into interregional communications\* is indeed producing a drop in the "long-distance" rates, to the benefit of companies, which are the big users. On the other hand, local communication rates are increasing at the expense of individuals. The "deregulation" model the United States is adopting thus consists of no longer agreeing to have the companies, the

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\* AT&T has been broken up into seven regional companies that retain a local monopoly and an eighth that keeps the name of AT&T for those interregional communications in which competition has been restored.

dynamic forces in the economic war, pay on behalf of individuals. This deregulation of communications provides a new and seductive example for the entire world.

Originally, this new American model did not seem destined for "export." However, as the ideologues, the strategists of the Reagan team, quickly realized deregulation's value as a weapon in the economic war and began proselytizing. And with a strong argument.

With the breakup of AT&T, the American market is now "open"--at least theoretically--to international competition. The foreign manufacturers of telecommunications supplies can sell their equipment there. Non-American investors can even buy shares in the new companies managing the networks. For example, France-Cable, a subsidiary of the French Post, Telegraph and Telephone (PTT) has invested 20 million dollars in the Argo company, one of the common carriers proliferating in competition with AT&T.

The United States thus explains at all international occasions: "We are opening our market, you should do the same. Not only should the PTT no longer limit their orders to the national industries, but their role should be reduced and competition restored in information transmission and the related new services." Washington's political offensive has already had its first successes.

In the United Kingdom, Mrs Thatcher has established Mercury, a company in competition with British Telecom, and 51 percent of its shares will be sold on the stock market. The change involves "a considerable liberalization of the communication law, and the offering of viewdata services at value added," said Dan Schiller,\* who explained: "Many users hope that this initiative will spread like wildfire to the rest of Europe."

In fact, the deregulation concept is gaining ground. The French opposition has included liberalization of telecommunications in its platform. In the FRG and Belgium liberal circles are proclaiming its virtues. In Japan, the Keidanren businessmen's organization (the Japanese equivalent of the National Council of French Employers) is preparing to establish a company to compete with Nippon Telephone and Telegraph and is supporting various amendments to telecommunications laws. The international telecommunications monopolies (AT&T and PTT for undersea cables and the Intelsat organization for satellite links) are being contested. MCI, for example, is proposing to European PTT's that they connect to its long-distance network to the United States. SBS, a 33-percent IBM subsidiary, is conducting experiments with Telecom 1, the viewdata satellite of the French PTT, and has even offered to manage it. In sum, the American model is spreading.

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\* "Telematics and Government," by Dan Schiller. Able Publishing Corporation, New Jersey, 1982.

## Game of the Big Corporations

Exporting is facilitated by those who profit from it: the big corporations. "The multinational corporations, which have activities spread throughout the world, will try to apply pressure to obtain everywhere the same advantages (tariff decreases) that they have obtained in the United States."(1) Just as the networks have no frontiers, the purposes of the users are worldwide: liberalization of the PTT monopolies, right of connection, and lower tariffs. These "users,"--mainly multinational corporations--are joined in the United Kingdom in a Telecommunications Managers Association (TMA), which played a vital role in the vote on the new law. In Australia, a country at the boundary between the American and Japanese spheres of influence, a campaign was developed in 1981 and 1982 against the Australian Post Office and has become a political issue. (2)

There are similar "user" associations in 11 countries: the FRG (Deutsche Telecom eV), Belgium (Belgian Telecommunications Managers Association), Switzerland (Swiss Association of Telephone Users), Australia (Australian Telecommunications Users Group, ATUG), Norway, Japan and France (French Association of Telephone and Telecommunications Users, AFUTT).

A number of these organizations of "consumer" origin have existed for a long time (TMA was formed in 1958, and AFUTT in 1969). In the beginning, they represented small users who were in difficulty with respect to the PTT, because of delays or billing, for example. However, like the AFUTT, more recently they have established groups of large users of networks. Have they been "drowned" by the multinationals? At least they seem to be unaware that the deregulation benefits the large users at the expense of the small.

These 11 associations are organized at the world level in the International Telecommunications Users Group (INTUG). Their representatives to it form the board of directors headed by Mr Weiss, also director for telecommunications of the American computer company Data General Europe. According to Mr Weiss: "INTUG represents more than 10,000 user companies throughout the world."

Also, some 30 multinationals, mainly American, have since 1981 been observer members of the INTUG board of directors, including Shell, Citibank, Rank Xerox, American Express, Lloyds Bank, Merrill Lynch, McGraw Hill and IBM Europe. INTUG's publicity brochure reads: "These companies spend millions of dollars a year for telecommunication. They depend on the quality of the national and international networks. They thus have a very great interest in promotion of freedom of choice in equipment, and obtaining tariffs that take into account the latest technical advances."

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1. Dan Schiller, *op cit*, p 119.
2. On this subject, read "The Phone Book," which reviews the recent history of Australian telecommunications and the "pressures" for their deregulation, by Ian Reinecke and Julianne Schultz, Penguin Book, Melbourne, 1983.

## Two Birds with One Stone

According to Mr Weiss: "The association represents its members in the international organizations: International Telecommunications Union (ITU), the UN agency that establishes worldwide regulations, and the International Telegraph and Telephone Consultative Committee [ITTCC], the technical committee of the ITU." INTUG has eight permanent members in the ITTCC, and also works in liaison with the International Chamber of Commerce (ICC). The strategy is subtle. These pressure groups, in their various white papers on telecommunications, do not question the existence of the PTT or government authority: the PTT's should keep "basic services" (the telephone), but the terminals and the advanced dataview services "do not have monopoly characteristics and should thus logically be open to competition."\*

INTUG calls for an international conference on liberalization of the PTT's-- outside the ITU, which is regarded as "too technical"--though which traditionally has had the role. A French PTT representative explained: "The reality is that the United States now mistrusts the ITU along with all the UN agencies regarded as too Third World. It has left UNESCO, which is accused of seeking a new world order in information. That was the substantive aspect. In regard to the carrier aspect, the telecommunications, the Americans have reservations about the ITU, and particularly the ITTCC, accused of being too favorable to the European PTT's." The conference might be held under the OECD, which is much more open to liberal views.

It is indisputable that the communications "deregulation" responds to the immediate needs of the big "users." However, that it should be given comprehensive economic legitimacy is more questionable, on the one hand, because the small users would suffer, as in the United States, from the competitors ready to "skim off" the most profitable links in the market, leaving the others to stagnate. Thus, competition with Intelsat in intercontinental communications over the Atlantic would end up by depriving that organization of the financial surplus that it redistributes to Third World countries and would peril its existence, with the southern countries finding themselves again without communications. On the other hand, the European industries would have much to lose with the disappearance of the protecting shield of the PTT's.

Through its political offensive the United States is killing two birds with one stone. The user multinationals, by pressing for export of deregulation, are trying to obtain advantages in cost of transmission for themselves. By questioning the economic legitimacy of the PTT monopolies they are also playing the game of the American equipment and services companies, because telecommunications is one of the rare portions of the public sector that generates substantial profits and contracts for national industries. Once "released," part of this manna could be collected by the American companies, and IBM in particular.

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\* International Chamber of Commerce. "The Liberalization of Telecommunication. Needs and Limits." Document no 373-21/1 Rev 2.

IBM is a member of all the aforementioned users groups (TMA, AFUTT...) and INTUG. The multinational also closely follows the work on networks by the International Organization for Standardization (ISO) in Geneva. The chairman of technical committee no 97, which covers all of electronics, is Mr Rankine, an IBM employee. Of the delegations of all the countries, including Japan, it is estimated that 30 percent of the experts are IBM employees. "No other company is so well represented at the ISO." Would not relinquishing state control over communications mean that they would fall under the control of IBM?

#### IBM's Role in Market

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["III--IBM Watches Over You"]

[Text] Is Big Blue, as Americans have familiarly nicknamed it, going to transform itself into Big Brother, in total charge, as described by George Orwell in his book "1984"? The question is at least worth stating, especially since in the last 2 years the "IBM world" has been winning the entire communications sector: computers, microprocessors, software, office automation, private telephone, components, telecommunication networks, and even robotics. As if the company had a calling to universality.

Rarely has an enterprise exercised such control over such a vast realm of activity. Rarely has an enterprise made such a miraculous recovery in such a short time. For though IBM had established itself in the 1960's as number one in the world in computers, the next decade witnessed a relative setback to its expansion.

One is never betrayed except by one's own people! The attack came from a former IBM staffer, Gene Amdahl, the father of the Series 360. His idea was simple: since IBM reigns over more than half of the world's stock of computers, in order to establish a position in the market you have to offer equipment compatible with IBM, able to use the programs, the software, of the number one in the world. Development of software is playing a larger and larger part in the cost of a computer system. By concentrating only on producing the equipment, Amdahl hopes to be able to offer users computers with a better cost-performance ratio, without their having to change their programs. The facts support his view. Within a few years, the producers of "compatibles" will be taking over a not insignificant part of the market, since today they represent more than 10 percent of the world stock.

Initially, IBM stood by, no doubt pleased to see its standard becoming established in face of its traditional competitors. However, the success of the "compatibles" is forcing it to react and undertake a costly price war. Especially since the Japanese did not stop with offering central units alone, but also sold cheaper software copied pure and simple from that of IBM.

A second problem: the emergence of new markets--minicomputers then microcomputers--which the newcomers gobbled up. IBM bungled the switch to the "mini," in which Digital Equipment Company (DEC) played somewhat the lion's

role for a while. DEC established itself in the universities and the research centers, and became the world's number two for the whole sector.

In 1979, it was Apple, a young Californian company, that came out with the microprocessor. The minicomputer, along with the microcomputer, threatened the power of IBM by nibbling away its traditional market "from below." Even worse, by contrasting "the game and personal world" of the "micro" with the "centralized" universe of the IBM computer, the newcomers attacked the company's strength at its very foundations: the management of the computer services of the major user enterprises. IBM has been able, through the quality of its products, but above all through its services to the customers, assistance, and maintenance, to make these its most faithful partners. For the microcomputer to be developing out of its control means a risk of undermining the entire network of influence so patiently created by the company.

At the same time, Big Blue is having to face a number of suits. A number of small companies (Telex, Memorex) are accusing it of unfair competition. Above all, the American government had been pressing a major antitrust suit since 1969. These judicial episodes will undoubtedly embarrass IBM, which, like any institution, will undergo a crisis of confidence. Certainly the corporation does retain its power, but one wonders whether it is not in a slow process of decline.

#### Citadel Besieged

IBM, facing competition, its traditional markets invaded by producers of "compatibles" and by the Japanese, facing for the first time in many years a decline in profits and a financial crisis, out of minicomputers and microcomputers, and blocked out of telecommunications--in the United States by AT&T, in Europe by the PTT's, and in Japan by NTT--it is seeing the future standards for transmission and local networks being established without it, or even against it (witness the X 25 standard established by Europe for computer data transmission, or the Ethernet local network developed by Xerox, DEC and Intel). In 1980, Mr Opel, the successor designate to Frank Cary, chairman of IBM, in an address to stockholders portrayed the company as a "besieged citadel."\*

Mr Opel was no doubt painting an overly dark picture, with obvious intent: to convince the government that a weakening of IBM would risk helping the cause of the competitors, European and particularly Japanese, to the detriment of American strength. The message would be heard even more clearly because the political climate is changing in the United States. The reindustrialization, one of the dominant themes of the 1980 presidential campaign, has to rely on succeeding major corporations. Who other than IBM can best respond to the Republican candidate's slogan "America Great Again"; IBM, that symbol of free enterprise and efficiency, with which the culture associates such typically American values as the dollar, morality and progress?

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\* Cited in "IBM: Colossus in Transition," by Robert Sobel. Bantam Books, December 1983.

With Ronald Reagan's election to the White House, IBM knew that it did not have much to fear, and the arrival of Mr Baxter as head of the government's antitrust department only confirmed this initial impression. Like other federal judges or officials of the administration appointed by Mr Reagan, Mr Baxter is an ultraliberal.

One of his first actions was to conclude--on 1 January 1982--the suit against IBM, whose position, in his view, was the result of its own efforts, and to break up AT&T, which, also according to Mr Baxter, had used a monopoly delegated by the state in a market (local telephone) to attack its competitors in other markets (long-distance telecommunications specifically).

This change in attitude by the American government would not in itself have made possible such a rapid recovery by the company. In fact, by the end of the 1970's the company had laid out the major directions of its counteroffensive and conducted a reorganization and mobilization of all its potentials. This was a strategy initiated by Frank Cary, but which yielded fruit for John Opel, who took command on 1 January 1981. It was a strategy that could operate all-out following the dropping of the antitrust suit.

#### Counteroffensive

The first objective of this counteroffensive: to tap new capital. Almost 2 billion dollars was obtained in 1979-1980. The second objective: to make massive investment in the new automated factories, increase production capacities, and improve competitiveness. Over 5 years, from 1978 to 1982, IBM invested more than 20 billion dollars, of which half was for research and development.

The third objective: regain the initiative in the traditional markets and slow down the proliferation of producers of "compatibles," not only for mainframes but also for the peripherals, even software. The introduction of new machines and concealment of some of their basic specifications were among the methods used.

Immediately, some of the producers of "compatibles" were tempted to try to obtain this sensitive information by underhand means. No doubt IBM had expected this, and in 1982, with the help of the FBI, it caught the Japanese Hitachi and Mitsubishi groups. Hitachi had to go to Canossa and pay 300 million dollars in damages and interest to the company. It was a symbolic action, intended really to show that the "compatibles" could only survive with, and not against, IBM. Hence, Fujitsu reportedly agreed a few days ago to return royalties to IBM for the sale of its "compatible" software.

The fourth objective: to massively attack the new markets and to assert itself as numer one in the world for communication industry. The most spectacular move came in the microcomputer area, in which IBM, with its "PC" personal computer, seized a quarter of the market, soon to be 50 percent, making inroads on its main competitors, who had started earlier. Here also, the IBM standard is being imposed.

The company's ambitions are even greater in regard to communications. For a long time it has envisaged that the barriers between computer, telephone, television and typewriter would disappear and all would be integrated within huge communications networks. Beginning in 1962, IBM established specialized laboratories working strictly on telecommunications. A telephone exchange was even put out by the French center at La Gaudé, in the south, though it was sold only in Europe. Fear of the wrath of the antitrust legislation and the presence of AT&T blocked IBM in the American telecommunications market.

Nevertheless, in 1973 EBM discreetly entered this realm by taking control of the CLM Satellite Corporation.\* This organization had been created by Comsat, Lockheed, and MCI (one of the first to go into competition with AT&T for long-distance calls in the United States). CLM was planning to establish a worldwide telecommunications network by satellites. MCI and Lockheed sold their shares to IBM, which converted CLM into a new company, Satellite Business System (SBS), in which it shared the capital with Comsat and an insurance company, Aetna.

In parallel, IBM developed a concept of a telecomputer network (SNA) enabling communication, dialogue, among large and small computers, terminals, office automation terminals and systems, etc, via the telecommunications networks. The company hoped to see its standard adopted by the rest of the world. Following the political change in Washington, IBM was thrown into the open breach in 1982 by the deregulation.

In order to reflect this overall strategy also within the enterprise, IBM undertook a major reorganization of its marketing structure. Henceforth, there would be a distinction between large and small customers, and no longer by type of product. Thus, according to the company, the user would be dealing with the same person who could resolve his communications problems as a whole.

Another important innovation: cooperation with other companies. "Even we can not do everything by ourselves." In order to cover the whole spectrum of communications, IBM drew reputable companies, small or large, into its sphere of influence. It was not a question of buying them, but rather, much more cleverly, allowing them to develop within the orbit of the "big brother."

A small services company, Microsoft, thus developed PC-based software. Qume, an ITT subsidiary, produced diskettes; Advanced Input Device, keyboards; and AMP, connector cables. As for Teledyne, a big company, it subcontracted to assemble the new PC Junior. Scientific Calculated updated the CAO software for the Series 4300. Some of these companies signed specific agreements (called VAR's) closely tying them to IBM. These agreements guaranteed their survival and development. "Slave agreements," some called them, since they "become mere satellites of IBM."

This strategy is doubly profitable for the "giant." On the one hand, it does not have to develop itself the innumerable software and related products. On the other hand, the dynamism of these small companies can make it possible to

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\* "IBM: Colossus in Transition."

respond more quickly and skillfully than the ponderous IBM structure could do in regard to some technical problems.

The acquisition of 16 percent of Intel, one of the champions of integrated circuits, and 19 percent of Rolm, one of the big companies in private telephones, brought to the company additional capabilities and a sharing of the research costs. Intel and Rolm officially retain all their independence. In Intel, IBM has even indulged the luxury of having only one director, and a retired employee at that. However, who will believe that the weight of IBM will not be asserted more and more? If only because the company will become one of the main customers of the two firms and because a number of products will be developed jointly. This concerns some of Intel's clients, who are afraid that one day the company--under friendly pressure from its partner--may refuse to accept some of their microprocessors.

#### Lobbying

IBM is backing up this overall strategy with a formidable public relations campaign (the American term lobbying appears more appropriate) in the United States and the rest of the world. To this end, Big Blue has considerably strengthened its networks of influence: in all the international bodies dealing with technical and standardization issues, and with governments and major users (for the past 2 years, more and more "former IBM-ers" have been taking over as computer managers in companies). In Europe alone, more than 200 have reportedly been assigned such responsibility.

Without ever breaking the rules of an ethic that prohibits it--unlike many other companies--from using "immoral" methods (bribery, for example), IBM slowly but surely weaves its fabric, by very cleverly exploiting its multinationality, strength, and image.

German in Germany, Italian in Italy, and French in France, the company has even been trying for several months to be Japanese in Japan. In each large country, the local affiliate explains that it employs tens of thousands of nationals, awards many subcontracts, and contributes to improving the trade balance. Why exclude from this or that market, from this or that research, a company that wants to serve man and the nations, whose sole ambition is to be simultaneously a good citizen of each country...and a citizen of the world, and to solve, for the greater good of its users and the public authorities, those technical problems that after all are beyond their capability?

Is that not the gist of the latest advertising, how revealing, that is displayed in papers in the United States and Southeast Asia? In the center of the page a huge pillow, emblazoned with IBM. The caption: "The most important thing you can ask of a computer company is to be able to sleep in peace."

IBM watches over you...

## European Market Prospects

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[ "IV: How To Survive?"]

[Text] The American deregulation has destroyed the existing order. Today, the communications world is obviously in complete confusion. Since nature abhors a vacuum, a new order will be established. However, that IBM might become, on a world scale, the big computer is beginning to cause concern.

To tell the truth, this awareness is a bit late. It took the bad times in the young microcomputer industry that followed the emergence of the "PC"; the violence of the attacks against Hitachi and the producers of the compatibles; the company's many initiatives and its determination to capture the bulk of the market (equipment and software) in the communications field, and the plums of the high value-added services to be linked to the intercontinental networks, for the pieces of the puzzle to gradually fall into place. Today, everyone, from the small microcomputer or software company to AT&T, the European PTT's, and the Japanese groups, and including DEC, Apple, Burroughs, Wang, etc, feel concerned, threatened, and wonder if they will not be next on IBM's victim list.

"IBM is currently achieving gross profit margins of about 24 percent. Behind it there is one group with an average rate of 15-16 percent. Then comes a second group with rates of about 7 percent." John Cunningham, chairman of Wang, which in a few years has carved out a choice position in office automation (2 billion dollars' turnover) continued: "If IBM decided to bring its profit margin down to 20 percent and cut prices, the second group, which includes our company, could just about keep up, however there would be significant damage to the others. With too-narrow margins they would no longer be able to invest or keep up with technological changes."

Between IBM and AT&T, therefore, few groups will survive and still maintain their autonomy in the battle that is underway. John Cunningham estimates that there will be "five or six, at most, at world level." Some will simply disappear. Others will topple into the IBM universe. Some will concentrate on very specific niches.

As for the PTT's of the various countries, they are wondering about the role and position that will be left to them in a world of deregulated communication and under IBM influence. They run a serious risk of being reduced to the minimum profit share, relegated to being "pipelayers," while the architecture of the communications systems and all the related services gradually escape them.

Becoming aware of the danger is one thing. Defining a policy to face it is another. Individually, none of the protagonists confronting IBM currently has as many trumps as the giant. None covers all sectors of communications, none has such a vast worldwide establishment, and none has equivalent financial resources. Add to this the political and cultural factors that condition different approaches depending on the nature and nationality of the actors.

This does not facilitate their task in facing that "cathedral" IBM. Also, the reactions vary from continent to continent.

Across the Atlantic, managers who admire the successes of the finest flower of American industry are proud of this "model of free enterprise." As competitors, they are certainly disturbed, but try to reassure themselves. "IBM will never try to dominate the entire market, but only to control 50 percent of each sector. It is up to us to be among the survivors, to be one of the two or three competitors that will coexist with IBM in each of the major categories of the market."

Most of the American companies have now come to this conclusion. Since competition with IBM over the entire range of communications is regarded as impossible--except perhaps for AT&T--they are going to fight for the second positions. Someone at Burroughs said: "We must be regarded as the most serious alternative to IBM." The same ambition prevails among the trio Honeywell-NEC-Bull, and at NCR. They are trying to hold a position in terms of specific products or customers (banks, universities, hospitals).

In the microcomputer area, it was Apple that went on a counterattack in January with a new piece of equipment to maintain its computer-in-use total and particularly its standard in relation to the PC. DEC, weakened by its failure with the microcomputer, some basic management errors, and its drop in profits, risks becoming the target of IBM's next offensive on the minicomputers and the university and scientific markets. The company knows this, and has itself also announced a rapid and thorough shakeup to face the danger.

#### Europe: A Simple Market

According to John Cunningham, the conditions for being among the survivors are of various types: "You have to have a clear strategy, make a good choice of market segments and stick to them. Because IBM can tolerate errors, the others not."... "You have to be better than IBM in that segment by offering easy-to-handle products, by being closer to the users." Finally, you have to "look for cooperation and complementarity with other companies in related segments or the networks." Hence, the development in 1983 of cooperation agreements, particularly on local networks and their standards, and integrated circuits. Hence also the agreements strengthening international establishments, particularly in the Old Continent.

If Europe interests the Americans, it is primarily and above all as a place to distribute their products. Since everyone is expecting strong growth in the European communications market, whether it be microcomputers, office automation, or local networks, there is a rush to find European partners with a good distribution network and good knowledge of the market. Was that not one of the primary objectives of AT&T's agreements with Philips and Olivetti?

Europe also interests the Americans in another area: the PTT's. Beginning with IBM, they all want opening up of the public markets. They are playing the deregulation card in Europe, except for AT&T, which has not forgotten its 55 years of privileged relations with the European PTT's. They would like

the PTT's to have less and less power and money, but at the same time try to obtain their support, for their signature, on a standards issue for example, is still worth a lot, and they have a significant influence in the rest of the world. The ideal thing would be for the PTT's to contribute to their own decline.

Again, it is IBM that stands out as the most active, both in penetration of the European market and in "infiltration" of the PTT's. It is as if the company was trying to gain a maximum of positions as quickly as possible in order to be protected from any nationalist reaction in Europe...and in Japan; also in order to be in a strong position to negotiate an eventual deal with AT&T on a worldwide scale.

In face of this American offensive and the IBM ambitions, Europe is drifting. Its weakened companies are operating in dispersed formation, seeking their salvation in agreements with American partners. The PTT administrations are hesitating about the strategy to follow. The governments, subject to many pressures, come to have doubts about the European concept and wonder whether they would not be better off to play an individual card.

#### Subcontract or Participate in Development?

In the IBM case, should we in the name of realism recognize the lag, the irreversibility of the deregulation phenomenon, and Europe's inability to unite, and yield to the loudest sirens? There is no lack of proponents of alliance with the giant, particularly in France, and they come from all elements. The idea is that the first to deal with it will gain some material advantages.

Certainly it is true that IBM has acquired by its success and by its progress in computer technology a solid position. This cannot be ignored. It has its position in the world economic game, but only its position, which is that of a private corporation. Yet, even if it did not have the will, its power and competence would create the risk of its being led, particularly if the field is left completely open to it, to gradually take over the management and organization of the world networks, and to depart from its role.

Can we entrust world communications to a single private company, which would thus, because of the circumstances, be able to organize the flow of knowledge and to determine the products and systems that humanity needed? A company that, whatever its ethics, would in all likelihood be able to impose its cultural model on the whole planet?

Another temptation is appearing in Europe and France: to play the deregulation card and yield in Europe, hoping to pick up a few morsels of the American market. This tactic involves opening the European networks to the new American common carriers that will be competing with AT&T in the long-distance service in the United States as well as the intercontinental links. MCI is thus knocking at the doors of the European PTT's. France has already allowed itself to be seduced. France has almost done so, in the hope that, by authorizing MCI to connect its traffic to the European network, that company

would give orders to CIT-Alcatel for telephone exchanges for the American market; also with the idea of thereby escaping the two giants, IBM and AT&T.

This approach may appear shrewd at first, however it involves two major risks. On the one hand, it would not provide a real answer to the industrial problems of the French electronic industry as a whole. Only CIT-Alcatel would gain some precarious advantage. On the other hand, it would certainly break the European front. Each would go his own way, signing with his common carrier, and opening the road to Balkanization, for the greatest long-term profit of the most powerful: IBM.

Etienne Davignon, European commissioner of industrial affairs, states: "The Europeans are sitting on a market of considerable value. Are we going to negotiate with the Americans a simple subcontract or participation in development? If the Europeans do not first get their own affairs in order, they will be reduced to subcontracting, and selling their markets to IBM or AT&T, or both. However, you only sell your market once!" In sum, in order to respond to the challenge posed by deregulation and the American drive, we must first come to an understanding among Europeans, among the PTT's and industrial companies of the Old Continent, and prepare a strategy to negotiate together under better conditions.

As for the administrations (PTT, Bundespost, etc), the task is difficult. They must demonstrate by an increased effectiveness that they are up to meeting the new needs of users at competitive prices. This implies an internal mobilization of personnel, a questioning of some dogmas, and revision of the rate structures. They must harmonize their actions. The suggestions for joint opening of respective markets currently being discussed between France and the United Kingdom should be extended to other countries, and result in a broader cooperation involving the whole range of activities relating to communications (standards, services, and products), as has been agreed on, for example, between France and the FRG with respect to radiotelephone.

It is only by very quickly organizing a "European-type deregulation" that the Old Continent can hope to survive as an autonomous entity. Its resistance could serve as an example to Japan and the rest of the world. United, Europe could then negotiate on an equal basis. For the new world order in communications must inevitably be discussed with one of the two competing American giants.

Weakened by deregulation, the loss of its captive market, its lack of international establishment, and its "gaps" in some areas of communications, AT&T, which has a public service "culture," would doubtless be--temporarily--a more malleable partner for the European PTT's and governments, in accordance with the principle "it is better to negotiate with the weakest of your enemies."

This alliance with "exploiting" managers of networks and services (particularly in regard to standards and new services) would not exclude cooperation agreements that the European industrial companies might sign with other companies, American or Japanese, struggling to survive in each sector of the communications market. To be effective, indeed, such a strategy assumes,

finally, that each one's role be clearly defined. It is up to the administrations, the political authorities, to conduct the overall negotiations, without getting involved in individual agreements, which are the prerogative of the company directors.

In fact, everything is going to be decided in 1984. If Europe is not capable within the coming year--Mr Davignon even talks about 6 months--of realizing the danger and establishing the framework, the schedule, and the resources for genuine cooperation in a sector as vital as communications, then the Old Continent and its composing countries run the risk of being put on the sidelines.

Boxed article: "The Spider Web." Although IBM's offensive is always carried out through local subsidiaries and does not rule out a degree of competition among them, it nevertheless does not leave any room for improvisation. Operating according to a worldwide strategy, it is closely coordinated. This is true of the alluring proposals that the company has very discreetly made in the last few months both to PTT's and administrations (universities, research centers, hospitals, national education) and European governments.

In the FRG, IBM has been selected by the Bundespost to develop the German videotext; to the great displeasure of Siemens.

In the United Kingdom, the company has proposed to the banks, in cooperation with British Telecom, to install a large electronic payment network linking the merchants and the financial institutions. Connections are also planned between British Telecom and SBS.

In France, IBM has made some breakthroughs in the PTT bastion. It will participate with the French SESA company in automation of the Information Center (the "12"). It almost obtained the contract for a computer system for the National Center for Telecommunications Studies (CNET) at Lannion. This contact was "suspended" at the last moment by the Presidency. The same scenario occurred in regard to the new equipment for detailed billing of telephone subscribers.

The computerization program for hospitals aimed at linking them in a local network prompted a bitter battle between IBM and a French pair, Bull-Intertechnique. Here also, IBM almost won by surprise.

Even more spectacular has been the company's activity for national education and research. It has developed a European university research network that could link all the universities of the seven European countries, beginning with those that have its equipment. Four French institutions have been initially selected: the Advanced Teacher Training School, the School for Advanced Business Studies (HEC), the School of Mines at Sophia-Antipolis, near Antibes, and the National University Center-South for calculus at Montpellier. The idea is to offer to all these centers part of the equipment free. The Advanced Teacher Training School has already received an IBM 4341, display terminals, and PC's valued at an estimated 10 million francs.

The EURN network will then be connected to the American and Canadian universities network.

IBM reportedly plans to give the research laboratories several dozen PC's in 1984. The same will be done for national education, in France and throughout Europe.

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FRANCE

DGT TO HELP FINANCE SMALL, MEDIUM FIRMS; EYES U.S. MARKET

Paris ELECTRONIQUE ACTUALITES in French 3 Feb 84 p 10

[Article by D. Levy: "DGT Support for Innovation and Export by Small and Medium-Sized Firms"]

[Text] The number of people attending the DGT-PMI Day, organized on 25 January in Paris by DGT (General Telecommunications Directorate), was a measure of the echo of hope raised by DGT's efforts toward PMI's (small and medium-sized industries).

More than 300 persons--mostly heads of PMI's--came from the four corners of the country to gather more information about the administration's intentions, so as to take better advantage of the opportunities offered to them; this was more than three times the number of those who attended the first meeting of this type, held one year before (see ELECTRONIQUE ACTUALITES of 21 January 1983).

Indeed, the mutual interests of the two parties are best served by concerted action: in exchange for technical support (through transfers of technology from CNET--National Center for Telecommunications Studies--for instance), financial support (market studies, orders), and exportation support, DGT encourages PMI's to innovate, export, diversify, and create jobs.

The idea of undertaking a specific action toward PMI's arose from DGT's observation that many market slots were poorly exploited by our enterprises in the vast telecommunications sector (measurement instruments, tooling, remote control systems, various terminals, telematic products, and so on). Hence the opportunity to call upon PMI's to complement the work of the large manufacturers. In order to implement a coherent policy, a PMI Task Force headed by Mr Karaghiozian was created within DAI in July 1982.

The goals of this task force, aimed at financially independent PMI's of less than 500 employees, are to heighten their presence on DGT's market of supplies and studies; stimulate the diversification of PMI's that are too deeply dependent on DGT orders, both through exportation of their own products and

through the creation of innovative products that would interest other customers than DGT; raise the technologic level of some enterprises through relations with CNET and transfers of technology; and encourage the creation of enterprises by DGT engineers with skills acquired at CNET, for instance.

This action, supported by DGT's study and supplies markets, is complemented by the intervention of companies specialized in the financing of innovation (Sofinnova, Soginnove, Sofineti).

#### 500 PMI's Involved

These two approaches, of a financial and technical nature, dominated the Second DGT-PMI Day. Opening the proceedings, Mr Dondoux, director general at Telecommunications, indicated that the "PMI Task Force controls an industrial file of 500 companies and 200 complete portfolios." The enterprises involved represent revenues of 7 billion francs, of which 700 MF consist of PTT orders (for a 10 percent rate of dependency), exportations of 1.25 billion (15 percent), and a personnel of 20,000 people. Mr Dondoux also pointed out the expansion of the PMI Task Force "through an extension in the number of companies on file, through the publication of a practical guide for PMI use, and through a regionalization of its CNET and DRT (Regional Telecommunications Directorate) actions throughout the country. In addition, the cummulated volume of its actions went from 1 MF in 1981, to 22.7 MF in 1983."

Mr Pellegrin (Semy Engineering) then described the management of an innovation project by a PMI, dwelling on the concept of "alliances," notably with CNET-Grenoble, which made it possible for him to start his production of semiconductor equipment. In turn, Mr Seguin (Mecelec) discussed the practical case of a transfer of technology from CNET to a PMI, involving an electronic coin selector which had been patented by CNET. These two companies, which are technically advanced in their specialties, will now attempt to exploit their technologies elsewhere in the world. In conclusion, Mr Camus (CNET-Grenoble) stated: "You must make contact with the research center and innovation can result from a dialogue with the requestor. All the latter need do is come to CNET!"

Also notable was the talk by Mr Picard, head of the Industry Service at DAI, on videocommunications, a talk tinged with self criticism: "Given its size, we had not planned to consult Velec because we did not want to have it take any risks. But at Velec's insistence we relented while encouraging this PMI to join with another manufacturer." The result is that the Velec solution was adopted by PTT as the most daring one.

#### Commercial Network in USA

The financial question, considered through the presentation of the financing of two innovation programs by two PMI's that are becoming diversified (LEA--Electroacoustical Laboratory and AET--European Association for Thermography), did not raise insurmountable obstacles: "It is no more difficult to obtain capital in France than abroad, but what takes time is the

number of agencies which must be consulted to 'raise capital'," explained one enterprise leader. But such agencies as ANVAR (National Association for the Implementation of Research) are planning to guide PMI's as far as possible through the maze of financing companies.

Another highlight of the meeting was the mention of the American market, notably through the presentation of the FTec (French Telecommunications and Electronics Council) project by Mr Farnoux, a project aiming to offer PMI's on the American market "an information platform which will gradually become a commercial network." An embryo company has been formed, whose supervisory committee chairman is Mr Clement, founder of SECRE (Electronic Studies and Construction Company); the capital of the French holding company which will hold the capital of the American company is being finalized. The two major stockholders will be a DGT subsidiary and FIEE (Federation of Electronic and Electrical Industries). With expenses estimated at 100 MF for the first three years of operation, Mr Farnoux believes that the company will generate revenues of 100 million dollars by the end of the three years. Three market slots will be exploited at first: advanced passive components, as well as voice and data communication products.

Mr Bodin, deputy director of Mr Mexandeau's office, representing the PTT minister, closed the meeting by stating that "for PTT there can be no electronics policy, especially in telecommunications, computerization, or office automation, involving only the large industrial groups. This overture made toward PMI's is reflected in facts: 176 PMI's have benefited from SEDE's market studies in 1983, against 151 in 1982, and the total research credits for PMI's reached 200 MF in 1983, or 10 percent of the grand total. Similarly, exportation revenues, partly due to DAI support, have grown by 25 percent, while the number of companies that are selling abroad is increasing."

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DATA PROCESSING, AUTOMATION INSTITUTE OPENS NEW FACILITY

Paris AFP SCIENCES in French 19 Jan 84 pp 23-24

[Article: "New INRIA Center at Sophia-Antipolis Near Nice"]

[Text] Laurent Fabius, minister of industry and research, on 13 January dedicated the new center of the National Institute of Research on Data Processing and Automation (INRIA) at Sophia-Antipolis, near Nice.

Established in 1979, INRIA has the task of carrying out research in cooperation with public and private organizations and companies and of developing experimental data processing systems. The institute this year has a budget of 200 million francs and has nearly 500 research personnel working in its three principal research centers at Rennes [Ille et Villaine Department], Rocquencourt [Yvelines Department], and Sophia-Antipolis [Alpes-Maritimes].

In dedicating its most recently-established facility, in the center of the international activities zone in Valbonne [Alpes-Maritimes], Minister Fabius emphasized "the indispensable need to break down the barriers between research and industry." The minister said: "The key to the development of our country lies in that direction," and he added: "the industry of tomorrow is the science of today."

Jean-Louis Lions, the director general of INRIA, stated: "Our objective is to develop new data processing systems and to apply them in cooperation with industry." He added: "We are also working in close collaboration with the universities and with the CNRS [National Center for Scientific Research]. This is the case with our digital simulation project, which is intended to replace full-size wind tunnel experiments, for example."

Some 60 people, including 40 scientists, who have been working since October 1983, have been able to move into the new buildings of the INRIA center in Sophia-Antipolis, whose construction was decided on in January 1980.

In accordance with the policy of the institute, the missions assigned to this center include:

Research

Ten research projects, seven of which had already begun in 1983. They will be developed in terms of the three preferred criteria of the institute: originality

of the idea, its compatibility with national industrial policy, and its situation in terms of the international context.

Industry contacts are available for all of these projects. They include AMBDA [expansion unknown], SNIAS [Aerospatiale], CNET [National Telecommunications Study Center], SEMA [Company for Economics and Applied Mathematics], STCAN [Technical Service for Naval Construction and Weapons], DRET [Directorate for Research Studies and Techniques], Digitone, Framentec, Telesysteme, Telemecanique, Thomson Group, ONERA [National Office for Aerospace Studies and Research], Bull Computer Group, SYSSECA [expansion unknown], Transac-Alcatel, and TRT [Radioelectrical and Telephonic Telecommunications].

The center has a particularly active scientific environment: the Universite de Nice, the Universite de Provence at Marseille, the CNRS, and the Ecole Nationale Superieure des Mines de Paris [Higher National School of Mines in Paris].

Furthermore, foreign specialists are already associated with the work of the research teams. About 15 foreign scientists spent some time at the center at Sophia-Antipolis in 1983.

#### Training

The center at Sophia-Antipolis is continuing and wishes to expand overall activity by the INRIA in terms of training, including:

- Orientation of trainees;
- Organization of INRIA schools on specific themes;
- Participation in educational programs of the CIMPA (International Center for Pure and Applied Mathematics);
- Development of the research program in software engineering by CERICS (Center for Training and Research in Data Processing, Communications, and Systems), in cooperation with the Bull Group and the Chamber of Commerce and Industry of Nice and of the Alpes-Maritimes.

#### Transmission and Extension of Information

- Working groups, seminars, and international meetings have been organized at the center;
- The documentation center, which presently has a documentary collection of 2,000 works in the field, has the mission of being: (a) a center serving professionals at the center and in the region; (b) a relay station of the National Documentation Center at Rockencourt; and (c) a point of access to international data bases.

#### Means Available

- The center has a DPS/68 MULTICS Bull bi-processor (which it shares with CERICS) and mini and micro-computers, including eight SM 90's;

--Pierre Bernhard, a graduate of the Ecole Polytechnique [Polytechnic School] and of the Ecole des Mines [School of Mines], a Ph D and Doctor of Science, is the director of the center at Sophia-Antipolis.

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## BRIEFS

THOMSON-TELECOMMUNICATIONS HOLDING COMPANY CREATED--Paris--A joint press release by Thomson and CGE [French General Electric Company], published in Paris on 17 January, stated that Thomson-Telecommunications (TT), a holding company that will gradually take in Thomson's civilian communications activities and become gradually more closely associated with CIT-Alcatel (CGE group), has been created. The creation of the company stems from the redefining of the boundaries between the two nationalized groups in order to "strengthen the position of each in the business in which it is better able to defend the interests of French industry and its employees in international competition," the press release emphasized. The set up is temporary and will eventually end in the fusion of TT's activities with CIT-Alcatel. Mr Pierre Guichet, 51 years old, general manager of CIPEL (a subsidiary of SAFT of the CGE group) from 1975 to 1980, then assistant general manager of Thomson-CSF Telephone, was named chairman and managing director. Messrs Jacques Darmon (Thomson) and Christian Fayard (CGE) were named vice-presidents. This operation follows several operations to reorganize activities: in cable television, Thomson's stakes in Cabeltel and Thomson-Jeumont Cables were acquired by Cables de Lyon, a subsidiary of CGE, while CIT-Alcatel acquired the HBS company (mail sorting) from Thomson. The transfer of CEPEM (manufacturer of ranges, ovens and water heaters), SCA (electronic components) to Thomson, and CIT-Alcatel's participation in SINTRA (professional electronics) have been made final. [Text] [Paris AGENCE FRANCE PRESSE SCIENCES in French No 387, 19 Jan 84 p 28] 12413

CABLE TELEVISION FOR LYON--Paris--Trial cable television for Lyon in 1985. Five thousand homes will be equipped with cable television having nine different channels in certain neighborhoods in Lyon, to start, the Ministry of Post and Telecommunications (PTT) announced on 17 January at the close of a meeting between Messrs Louis Mexandeau and Francisque Collomb, senator and mayor of the city. The two parties reached an agreement on the pilot project, taking into account the technological trend toward the use of optical fibers. The neighborhoods to be equipped will be selected jointly by the municipal authorities and the regional telecommunications administration. Homes equipped with the new network will receive, if they so desire, a Minitel terminal that will provide an electronic telephone directory and access to data banks. The overall project for Lyon is being studied by a recently created working committee composed of the PTT (main headquarters for telecommunications, TDF), the city of Lyon and the representative(s) or adviser(s) to be chosen by the city. The committee will, in particular, study the formulas for associating the city and the PTT for the construction and use of the network and, in the next 3 months, will have to define the practical terms of the project. [Text] [Paris AGENCE FRANCE PRESSE SCIENCES in French, No 387, 19 Jan 84 p 29] 12413

TRANSPAC USER STATISTICS--TRANSPAC, the French national public data processing network, which provides for communications between computers and the transmission of data for processing, has confirmed that it is in first place in the world as of the beginning of 1984 with 21,400 direct accesses by the end of 1983. This was indicated by the company in Paris on 18 January. TRANSPAC, which celebrated the addition of its 10,000th subscriber in June 1983 and ended 1983 with 13,400 direct accesses in the course of the year, handles 120 billion characters per month. This acceleration in the rate of development of the system will be achieved through the investment of 375 million francs in 1984 and a 25 percent increase in personnel. The year 1984 will also be marked by preparations for the application of the TELETEX system through the telephone network and by an extension of the commercial activities of TRANSPAC to Lyon, Marseille, and Rennes.

[Text] [Paris AFP SCIENCES in French 19 Jan 84 pp 25-26] 5170

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